

**AREA 317  
RCRA QUARTERLY GROUND WATER QUALITY  
MONITORING REPORT NO. 14 AND REPORT OF  
MONITORING WELL MW-10 INSTALLATION  
JANUARY THROUGH MARCH 1992**

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**June 8, 1992**

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BERMITE DIVISION  
22116 West Soledad Canyon Road  
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**ACTON • MICKELSON • van DAM, INC.**  
**Consulting Scientists, Engineers, and Geologists**

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June 8, 1992

Mr. Alan Sorsher, P.E.  
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WHI01.15

Subject: RCRA Ground Water Quality Monitoring Report No. 14  
317 Surface Impoundment Hazardous Waste Management Unit,  
January through March 1992

Dear Mr. Sorsher:

In accordance with the Specific Plan for a Ground Water Quality Assessment Program for the 317 Surface Impoundment Area dated September 12, 1991, and in general accordance with the RCRA Closure Plan for Whittaker Corporation, Bermite Division, enclosed is a copy of the report of the sampling and analysis results of the January through March 1992, 317 Surface Impoundment Area sampling event. In addition, the report documents the installation of monitoring well MW-10 and the abandonment of monitoring well MW-4.

If you have any questions, please call me at (916) 939-7550.

Sincerely,

**ACTON • MICKELSON • van DAM, INC.**



Michael A. Acton, R.E.A.  
Vice President

MAA:mjd  
Enclosure

cc/enc: Mr. Ed Muller, Whittaker Corporation  
Mr. Glen AbdunNur, Whittaker Corporation, Bermite Division  
Mr. Tom Kelly, U.S. Environmental Protection Agency, Region IX  
Mr. Jim Ross, California Regional Water Quality Control Board, Los Angeles Region

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RCRA QUARTERLY GROUND WATER MONITORING REPORT NO. 14  
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WHITTAKER CORPORATION, BERMITE DIVISION FACILITY  
22116 WEST SOLEDAD CANYON ROAD  
SANTA CLARITA, CALIFORNIA 91350  
AMV NO. WHI01.15

June 8, 1992

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**WHITTAKER CORPORATION**  
**BERMITE DIVISION FACILITY**  
**22116 WEST SOLEDAD CANYON ROAD**  
**SANTA CLARITA, CALIFORNIA 91350**

## **1.0 INTRODUCTION**

The Whittaker Corporation, Bermite Division (Whittaker) facility (site) is located at 22116 West Soledad Canyon Road in Santa Clarita, California (Figure 1). At the time operations were terminated in April 1987, Whittaker had interim status permits for 14 Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Units (HWMUs) at the site. A document entitled "Whittaker Corporation, Bermite Division, Santa Clarita, CA CAD064573108, Facility Closure Plan Modifications" (Closure Plan), was prepared by Whittaker and approved by the California Environmental Protection Agency, Department of Toxic Substances Control (Cal-EPA) and U.S. Environmental Protection Agency (U.S.EPA) on December, 28, 1987. Outlined in the Closure Plan are procedures for obtaining approval by Cal-EPA and U.S. EPA of clean closure certification for the different HWMUs, including the 317 Surface Impoundment (Area 317).

Required in the Closure Plan is the implementation of a ground water monitoring system at Area 317 capable of detecting and assessing the impact of the HWMU on the uppermost aquifer at the site. Implementation of a ground water monitoring system is described in the document entitled "Specific Plan for a Ground Water Quality Assessment Program for the 317 Surface Impoundment Area," dated September 12, 1991 (Area 317 Plan).

A total of six ground water monitoring wells have been installed around Area 317 (Figure 2). Several reports detailing the location and construction of monitoring wells, sampling and analysis plan for collecting and analyzing ground water samples from the ground water monitoring wells, and quarterly sampling results which have been submitted to Cal-EPA and U.S. EPA are listed in Appendix A of this report. Section 2.0 of this report details the installation of monitoring well MW-10 during December 1991 to January 1992. Section 8.0 of this report details the abandonment of monitoring well MW-4 during May of 1992.

Quarterly ground water sampling activities were initiated on October 3, 1988, for monitoring wells MW-1, MW-3, and MW-4. The ground water monitoring program includes analyses of water samples for volatile organic compounds (VOCs). Laboratory analytical results from the third quarterly sampling event reported trichloroethene (TCE) at 4,800 micrograms per liter ( $\mu\text{g/l}$ ) in the ground water sample collected from monitoring well MW-4. As a result of this, two additional monitoring wells were installed in Area 317 (MW-5 and MW-6).

The fourth quarterly monitoring event included sampling of the ground water from monitoring wells MW-1, MW-3, and MW-4. The new monitoring wells (MW-5 and MW-6) were not equipped for sampling during the fourth quarterly sampling event. Analytical results from the fourth quarter were similar to those reported in the third quarterly sampling event. The concentrations of VOCs reported in samples collected from monitoring wells MW-1 and MW-3 were below laboratory reporting limits; however, analysis of the ground water sample collected from monitoring well MW-4 reported TCE at 7,200  $\mu\text{g/l}$ . Analysis of ground water samples collected from monitoring well MW-4 during the fifth through twelfth quarterly sampling events reported a steady decline in TCE concentration.

The fifth through twelfth quarterly sampling events were conducted utilizing all five monitoring wells in Area 317. Based on the results of the initial four sampling events, a reduced list of chemical parameters was approved by Cal-EPA for subsequent quarterly sampling events.

Statistical analysis of indicator parameters was also initiated during the fifth quarterly sampling event. The ground water samples collected and analyzed for indicator parameters from monitoring wells MW-1, MW-3 and MW-4 for the initial year of monitoring were evaluated to assess whether statistically significant changes to the ground water had occurred as a result of site activities.

A Comprehensive Ground Water Monitoring Evaluation (CME) was conducted by Cal-EPA on January 24 and 25, 1990, during the sixth quarterly monitoring event. Personnel from Cal-EPA were present during all phases of the sixth quarterly monitoring event, from the taking of initial potentiometric surface elevation measurements to the sealing of the coolers containing the quarterly ground water samples.

The fourteenth quarterly sampling event was conducted on January 30, 1992. Ground water samples from monitoring wells MW-1 and MW-5 were not obtainable during January 1992 due to mechanical problems with the pumps. Ground water samples for the fourteenth quarterly sampling event from monitoring wells MW-1 and MW-5 were collected in March 1992. The results of the fourteenth quarterly sampling and analysis event are presented in this report, together with recommendations for future quarterly sampling events.

## **2.0 MONITORING WELL MW-10 INSTALLATION**

Monitoring well MW-10 was drilled in response to a Corrective Action Order (CAO) dated January 16, 1991, drafted by Cal-EPA, regarding the potential migration of hazardous waste constituents from the former 317 Area. The work performed specifically addressed the following violation in the CAO Schedule for Compliance regarding the former 317 Area:

- CAO Violation 2.5; "Respondent violated 40 CFR section 265.93(a)(d) in that it had prepared a ground water quality assessment program for the 317 impoundment area, but the program is inadequate since it is incapable of determining the rate and extent of migration of hazardous waste or hazardous waste constituents in the ground water."

This violation was addressed in the Specific Plan for a Ground Water Quality Assessment Program for the 317 Surface Impoundment dated September 12, 1991, through the drilling, coring, logging, and sampling of monitoring well MW-10. Monitoring well MW-10 was proposed as a replacement well for monitoring well MW-4, which has been shown based upon empirical evidence to be a potential conduit for VOC migration from the vadose zone to the water-bearing unit.

The pathway by which TCE migrated into the water-bearing unit in which monitoring well MW-4 is screened is not known for certain; however, one possibility is that TCE vapor phase migration through the vadose zone was enhanced by air-rotary drilling operations utilized during the installation of adjacent vapor extraction wells and vapor monitoring probes, thereby allowing TCE vapors to more readily migrate into monitoring well MW-4 or the monitoring well annular space and subsequently into the saturated zone.

The May 19, 1992, letter proposal for Abandonment of Ground Water Monitoring Well MW-4 further details the relationship between air-rotary drilling techniques in the 317 Area and the occurrence of detectable levels of TCE in monitoring well MW-4.

The installation and sampling of monitoring well MW-10 also provides a demonstration pursuant to California Code of Regulations, Title 22, Section 66265.98 1 (7) that a source other than the regulated unit caused the evidence of a release.

The construction of monitoring well MW-10, located approximately 67 feet north-northwest of monitoring well MW-4 (Figure 2) began on December 17, 1991. The well was drilled by Water Development Corporation (C-51 License No. 283326) of Woodland, California. Prior to drilling, all equipment was high-pressure, steam-cleaned. Photographs representative of the drilling and construction of monitoring well MW-10 are presented in Appendix B.

## 2.1 Drilling Water

Effluent from monitoring well MW-4 was used for the drilling process of monitoring well MW-10 after it had been treated by a granular activated carbon (GAC) filter. The 54-inch-diameter filter, which contains approximately 1,200 pounds of GAC, is designed to process 70 gallons of water per minute (gpm). After ground water treatment, water samples were collected for laboratory analysis. Samples collected from monitoring well MW-4 effluent were reported by the laboratory to be below the reporting limits for VOCs for the analytical

method utilized. Copies of the analytical reports for the monitoring well MW-4 effluent are included in Appendix B.

## **2.2 Drilling and Sampling**

In order to collect representative lithologic samples, dual-tube reverse circulation (air rotary) drilling methodology was initially utilized. Soil samples were collected at 20-foot intervals above the water table and at 2-foot intervals below the water table. Due to difficult drilling conditions, the air-rotary drilling method was discontinued at 639 feet below ground surface. A continuous lithologic core was obtained from the remainder of the boring (from 639 to 701 feet below ground surface) using a Christianson 94 millimeter sampler.

Following the connection of lithologic samples from 639 to 701 feet below ground surface, mud-rotary methods were utilized to ream the boring to a diameter of 11 inches. Aquagel Gold Seal and Drispac were used in the drilling fluid to assist in the removal of cuttings and for borehole wall stability. Mud viscosity and weight were measured periodically to maximize the removal of the cuttings from the boring.

Cuttings and drilling mud from the boring were stored in plastic-lined rolloff boxes. Prior to disposal of the cuttings and drilling mud, a composite sample was analyzed for the presence of VOCs. Laboratory analytical results reported that the composite sample obtained from the rolloff boxes was nonhazardous. Laboratory analytical reports are presented in Appendix B.

## **2.3 Geophysical Log**

A geophysical log of monitoring well MW-10 was produced on January 17, 1992. Welenco Well Engineering Surveys produced a spontaneous potential (SP) log, resistivity log, and caliper log. Copies of the logs are included with the boring log in Appendix B.

## **2.4 Monitoring Well Construction**

### **2.4.1 Sieve Analysis**

Prior to placement of the monitoring well screen, a sieve analysis was performed by Roscoe Moss Company of Los Angeles, California. A sample representative of the soils within the screened interval of the well was collected from the samples obtained between 697.5 and 677.5 feet below ground surface. The results of the sieve analysis were used to select well screen slot size and grade filter pack for the monitoring well. A copy of the sieve analysis is included in Appendix B.

#### 2.4.2 Screen and Casing

The monitoring well was constructed on January 20, 1992, using flush-thread, 4-inch-diameter, stainless steel screen and casing. The casing was grooved and prepared for viton o-rings which were placed at every joint throughout the total depth of the monitoring well. Twenty feet of 0.2 inch slotted screen was placed at 697.5 to 677.5 feet below ground surface. Standard casing was placed from approximately 677.5 feet below ground surface to approximately 2 feet above grade. Stainless steel centralizers were placed at the top and bottom of the screen and at intervals of 40 feet for the remainder of the casing. Casing and screen were washed and wrapped by the manufacturer to minimize the likelihood that chemicals would be introduced into the borehole from the screen and casing. Details of the monitoring well construction are presented in Appendix B. A boring log is also included in Appendix B.

#### 2.4.3 Filter Pack and Seal

The monitoring well filter pack was designed with respect to the results of the sieve analysis. The material used was produced by Lone Star Industries and is classified as a #3 sand. The sand was placed by tremie to approximately 5 feet above the top of the screen. Above this, 5 feet of 30-mesh silica sand and 10 feet of bentonite slurry were placed by tremie. The bentonite slurry was emplaced as a barrier between the cement seal and the gravel pack. The cement seal consisted of a nine-sack, sand-cement slurry that contained approximately 5 percent bentonite. The seal was placed above the bentonite slurry to the ground surface.

#### 2.4.4 Development

The development of monitoring well MW-10 consisted of air lifting, bailing, swabbing, and pumping. First, the contents of the monitoring well were air-lifted to remove any drilling fluids and heavy sediments (cuttings) from the casing. Next, the monitoring well was bailed and swabbed to remove additional sediments and to "seat" the gravel pack. Finally, approximately 3,500 gallons of water was pumped from the well until, based on field observations, the turbidity of the water decreased to acceptable levels.

### **3.0 GROUND WATER LEVEL MEASUREMENTS**

Water level measurements were collected on January 29, 1992, prior to well evacuation and sampling activities. Monitoring well locations with respect to Area 317 are shown on Figure 2. Water levels were measured to the nearest 0.01 foot.

Water level elevations have decreased between 43.09 and 57.22 feet in monitoring wells MW-1, MW-3, MW-4, MW-5, and MW-6 since the initiation of RCRA ground water monitoring activities at Area 317. Water level elevations decreased 3.34, 3.12, 2.65, 2.36,

and 2.63 feet in monitoring wells MW-1, MW-3, MW-4, MW-5, and MW-6, respectively, between the thirteenth and fourteenth quarters. Table 1 summarizes potentiometric elevation data for monitoring wells in the former Area 317. Figure 3 graphically illustrates potentiometric surface elevations in monitoring wells MW-1, MW-3, MW-4, MW-5, MW-6, and MW-10.

A local ground water flow direction for January 29, 1992, has been estimated utilizing the potentiometric elevation data collected that day. Figure 3 illustrates the estimated potentiometric surface contours and the resultant estimated flow direction for January 29, 1992, which is toward the northwest. Based upon this data, monitoring wells MW-4, MW-5, MW-6, and MW-10 are estimated to be located hydraulically downgradient from the former Area 317, and monitoring wells MW-1 and MW-3 are estimated to be located hydraulically upgradient from the former Area 317.

#### **4.0 SAMPLE COLLECTION AND ANALYSES**

Ground water sampling procedures are outlined in Appendix C.

##### **4.1 Required Ground Water Analyses**

A reduced analytical parameter testing list was approved by Cal-EPA after submittal of "Quarterly Sampling Report No. 4." As of the fifth quarter, ground water samples from monitoring wells MW-1 and MW-3 were analyzed for the following: sulfates, chlorides, total phosphate, pH, specific conductance, total organic carbon (TOC), total organic halogens (TOX), and dissolved metals by EPA-approved methods. Ground water samples collected from monitoring wells MW-4, MW-5, and MW-6 were analyzed for pH, specific conductance, TOC, TOX, and VOCs by EPA-approved methods. As of this, the fourteenth quarter, ground water samples from monitoring well MW-10 are included in the analytical program. Samples obtained from monitoring well MW-10 were analyzed for the following: pH, specific conductivity, TOC, TOX, and VOCs.

##### **4.2 Indicator Parameters**

As per the Closure Plan, pH, specific conductance, TOC, and TOX are used as indicator parameters. Four ground water samples were collected from each monitoring well, and each sample was analyzed for pH, specific conductance, TOC, and TOX. EPA-approved methodologies were used in analyzing the indicator parameters. Appendix C summarizes the sample volumes, sample containers, and analytical methods required for each indicator parameter analyzed during the quarterly sampling events. The laboratory test method protocol is provided in Appendix B of the Wenck report entitled "Quarterly Sampling Report No. 1," dated December 1988.

### **4.3 Ground Water Quality Parameters**

As per the Closure Plan, monitoring is required to assess the quality of the ground water at the site relative to primary and secondary drinking water standards as defined in 40 CFR 265.92 (b)(1) - (3). Ground water samples collected from monitoring wells MW-1 and MW-3 were analyzed for the following drinking water standards: sulfate, chloride, and total phosphate. Appendix C summarizes the sample volumes, sample containers, and analytical methods required for each of the ground water quality parameters analyzed during quarterly sampling events. The laboratory test method protocol is provided in Appendix B of "Quarterly Sampling Report No. 1," dated December 1988.

### **4.4 Hazardous Constituent Parameters**

As per the Closure Plan, an analysis was required for hazardous constituents, as defined in 40 CFR 261, Appendix VIII, which were possibly used or created at the Area 317 HWMU. A list of metal and organic compounds used at the site was provided in the "Ground Water Sampling and Analysis Plan," dated August 1988. Appendix C summarizes the sample volumes, sample containers, and analytical methods required for each of the hazardous constituent parameter groups analyzed during this quarterly sampling event. Ground water samples collected from monitoring wells MW-4, MW-5, and MW-6 were analyzed for VOCs by EPA Method 624. Ground water samples collected from monitoring well MW-1 were analyzed for dissolved metals by EPA Method 6010. Ground water samples collected from monitoring well MW-10 were analyzed for VOCs by EPA Method 624 and dissolved metals by EPA Method 6010. The laboratory test method protocol is provided in Appendix B of "Quarterly Sampling Report No. 1," dated December 1988.

### **4.5 Approved Analytical Methods**

Indicator, ground water quality, and hazardous constituent parameters were analyzed by EPA or other approved methodologies. Analytical methodologies were presented in the "Ground Water Sampling and Analysis Plan," dated August 1988. Modifications to this plan were approved by Cal-EPA prior to the fifth quarterly sampling event. Copies of the laboratory test method protocol were included in Appendix B of "Quarterly Sampling Report No. 1," dated December 1988.

Ground water samples submitted to FGL Environmental (FGL) were analyzed by U.S. EPA-approved methods with the exception of total phosphate. Total phosphate has no U.S. EPA-specified methodology and therefore was analyzed by approved Standard Method 424F (16th Edition).

### **4.6 Laboratory QA/QC**

All ground water samples were submitted to FGL in Santa Paula, California, during the fourteenth quarterly ground water sampling event. FGL is certified by Cal-EPA to perform the ground water analyses outlined in the Closure Plan.

A detailed description of FGL's Quality Assurance/Quality Control (QA/QC) program is provided in Appendix D. Copies of the original laboratory analytical reports and chromatographs for all trip, field, and method blanks, and duplicate and spiked samples analyzed by FGL are provided in Appendix E.

## **5.0 SAMPLE ANALYTICAL RESULTS**

### **5.1 Indicator Parameters**

Four replicate ground water samples from each monitoring well were analyzed for pH, specific conductance, TOC, and TOX to serve as indicator parameters. Table 2 summarizes the results of the indicator parameter analyses. Copies of the original laboratory data sheets are presented in Appendix F.

Laboratory pH and specific conductance measurements recorded during the fourteenth quarterly sampling event were generally consistent with the measurements recorded during the previous sampling event.

Total organic carbon was reported in the ground water samples collected from monitoring wells MW-1, MW-3, and MW-6 [0.67, 0.6, and 0.9 milligrams per liter (mg/l), respectively] and was not reported in the samples collected from monitoring wells MW-4, MW-5, and MW-10. Three of the samples collected from each of monitoring wells MW-1 and MW-6 were reported as below the reporting limits for TOC; only one sample from each monitoring well had reportable concentrations of TOC. All four samples collected from monitoring well MW-3 were reported to have a concentration of 0.6 mg/l of TOC.

Concentrations of TOX were less than the laboratory reporting limit of 5  $\mu\text{g/l}$  in ground water samples collected from monitoring wells MW-1, MW-5, and MW-10. Concentrations of TOX in the samples collected from monitoring wells MW-4 and MW-6 ranged from 57.8 to 76.1  $\mu\text{g/l}$  and 8.1 to 12.9  $\mu\text{g/l}$ , respectively. Three of the samples collected from monitoring well MW-3 were reported as below the reporting limit; the fourth sample was reported to have a concentration of 5.8  $\mu\text{g/l}$ . Concentrations of TOX in samples from monitoring well MW-4 since the start of quarterly sampling are presented on Figure 4.

### **5.2 Ground Water Quality Parameters**

Ground water samples were analyzed from monitoring wells MW-1 and MW-3 for dissolved metals (arsenic, barium, cadmium, chromium, lead, mercury, nickel, selenium, and silver), sulfate, chloride, and total phosphates to serve as ground water quality parameters. Tables 3 and 4 summarize the analytical results for ground water samples collected from these two monitoring wells. Copies of the original analytical reports are provided in Appendix F.

Barium was reported as 70 and 320  $\mu\text{g/l}$  in the samples collected from monitoring wells MW-1 and MW-3, respectively. No other metals were detected at or above the laboratory reporting limit in the ground water samples collected from monitoring wells MW-1 and MW-3 (Table 3).

Ground water samples collected from monitoring wells MW-1 and MW-3 were also analyzed for sulfate, chloride, and total phosphate, with reported concentrations consistent with those previously reported (Table 4). Sulfate was reported at 13 and 85 mg/l for monitoring wells MW-1 and MW-3, respectively. Chloride was reported at 131 and 33 mg/l for monitoring wells MW-1 and MW-3, respectively. Total phosphate was below the reporting limits in the samples from both monitoring wells. Table 4 also lists the Maximum Contaminant Levels (MCL) for sulfate and chloride.

### 5.3 Hazardous Constituent Parameters

Ground water samples were collected from monitoring wells MW-1 and MW-3 and analyzed for dissolved metals (antimony, copper, and thallium) to serve as hazardous constituent parameters. Additionally, ground water samples collected from monitoring wells MW-4, MW-5, MW-6, and MW-10 were analyzed for VOCs by EPA Method 624 to serve as hazardous constituent parameters. Table 3 and 5 summarize the analytical results for the dissolved metals, VOCs, and hazardous constituent parameters tested, respectively.

The samples from monitoring wells MW-1 and MW-3 reported antimony, copper, and thallium at less than the detection limit. The analytical results for ground water samples collected from monitoring wells MW-4, MW-5, MW-6, and MW-10 reported all VOCs at less than the reporting limit except for TCE reported at 83  $\mu\text{g/l}$  in monitoring well MW-4.

Concentrations of TCE and TOX in the ground water samples collected from monitoring well MW-4 are summarized in Table 6. Figure 4 graphically illustrates the concentrations of TCE in monitoring well MW-4 samples since the start of quarterly sampling.

From the fifth through twelfth quarterly sampling events, concentrations of TCE in the ground water samples collected from monitoring well MW-4 had declined since initiation of the pump and treat system in July 1989 (Figure 5). The approximate tenfold increase in the concentrations of VOCs in the ground water sample collected during the fourteenth quarter may be attributed to the drilling of monitoring well MW-10 (Section 2.0). It is possible that the use of air-rotary drilling equipment mobilized VOCs either sorbed to soils or occupying pore space. Copies of the original analytical reports and chromatograms for the VOC analyses are provided in Appendix G.

## 6.0 STATISTICAL ANALYSIS OF RESULTS TO DATE

As indicated in the "Ground Water Sampling and Analysis Plan," dated August 1988, and as required in 40 CFR Part 265.92, statistical analyses of the indicator parameters have been performed to determine whether there is a statistically significant difference in the water quality between the individual downgradient monitoring wells and the upgradient or background monitoring wells. Monitoring wells MW-1 and MW-3 are considered upgradient monitoring wells in relation to Area 317, and monitoring wells MW-4, MW-5, MW-6, and MW-10 are considered downgradient monitoring wells in relation to Area 317.

After four quarters of sampling and analysis of the monitoring system, the mean, standard deviation, variance, and coefficient of variance of the four indicator parameters were calculated. These values were reported to Cal-EPA in correspondence to Alan Sorsher from Wenck, dated October 25, 1989. The statistical analysis, presented in the fifth through tenth quarterly sampling reports, indicated only one statistically significant difference in water quality as determined by the indicator parameters. This was interpreted by Wenck to be caused by erroneous TOC results from the sixth quarter. The indicator parameter statistics from background monitoring wells MW-1 and MW-3 have been updated to include the fourteenth quarter sampling results. These statistics were then compared to the indicator parameter statistics from the fourteenth quarter for downgradient monitoring wells MW-4, MW-5, MW-6, and MW-10.

The comparison is the calculation of the averaged-replicate t-test which determines that either "no," there is no statistically significant increase (or decrease for pH) in the indicator parameters from each downgradient monitoring well compared to the upgradient monitoring wells, or that "yes," a statistically significant increase (or decrease for pH) has occurred.

The fourteenth quarter calculated replicate statistics are included in Table H-1, presented in Appendix H. A summary of the quarterly replicate statistics for each monitoring well and the t-test calculations for TOC, TOX, specific conductance, and hydrogen ion concentration (pH) are shown in Appendix H, Tables H-2, H-3, H-4, and H-5, respectively.

### 6.1 Assumptions Used in the Statistical Analysis

As recommended in the "RCRA Ground Water Monitoring Technical Enforcement Guidance Document," the data points that are less than the detection limit have been given a value equal to one-half the detection limit of the analyte.

Calculation of the comparison test statistic ( $t_c$ ) was determined by following the procedure presented in 40 CFR 264, Appendix IV. The test statistic for the hydrogen ion concentration was calculated using a 0.05 level of significance for a two-tailed distribution, and the test statistics for the other parameters were calculated using a 0.05 level of significance for a one-tailed distribution. It was assumed that the data are distributed normally.

## 6.2 Data Preparation

The ground water sample analytical results from the two background or upgradient monitoring wells (MW-1 and MW-3) for all 14 quarters of ground water sampling (13 quarters for monitoring well MW-1) to date and the four downgradient monitoring wells (MW-4, MW-5, MW-6, and MW-10) for the fourteenth quarter of ground water sampling have been tabulated and prepared for statistical analysis. Four analytes have been used in the statistical analysis: pH, specific conductance, TOC, and TOX.

In accordance with the averaged replicate Students' t-test methodology used for this statistical analysis, the four indicator parameter analytical results, which are sampled and analyzed in quadruplicate each quarter (four replicates), are summarized by quarter and by monitoring well. Four summary statistics have been calculated: arithmetic mean, standard deviation, variance, and coefficient of variance. These quarterly replicate statistics have been calculated such that less than detection limit values are considered to have a value of one-half the detection limit and are presented in Table H-1.

The statistical analysis for the indicator parameters involves testing the null hypotheses regarding the ground water quality downgradient of Area 317, i.e., that there is no statistical difference between the average of the quarterly statistics for each of the four indicator parameters for background monitoring wells MW-1 and MW-3 compared to the fourteenth quarter statistics for each of the downgradient monitoring wells MW-4, MW-5, MW-6, and MW-10.

The calculations of the average quarterly statistics were performed in the same manner as were the quarterly statistics. The t-statistics ( $t^*$  and  $t_c$ ) were calculated as shown in 40 CFR 264, Appendix IV. The values of  $t_m$  and  $t_b$  were taken from the table included in 40 CFR 264, Appendix IV. An example calculation is included in Appendix H.

Note that the pH values have been transformed into their resulting hydrogen ion concentrations and that the values of  $t_m$  and  $t_b$  for the analysis of pH come from the two-tailed probability table.

## 6.3 Results

The averaged fourteenth quarter replicate results for each indicator parameter at each downgradient monitoring well were compared to the average first through fourteenth quarter replicate results for background monitoring wells MW-1 and MW-3. The statistical analyses indicate that there are no statistically significant differences in hydrogen ion concentration, specific conductance, TOC, or TOX between downgradient and background ground water quality except for TOX in monitoring well MW-4 and specific conductance in monitoring well MW-10. The elevated TOX reported in monitoring well MW-4 may be attributed to the drilling at the site (Section 9.3).

Although the specific conductance of the sample obtained from monitoring well MW-10 was statistically higher than the background ground water levels, the reported specific conductance was lower than the two background samples obtained this quarter. Therefore, although the reported specific conductance was statistically higher than background levels, it is unlikely the specific conductance is elevated because the level was lower than the background specific conductance samples collected during the fourteenth quarter.

## **7.0 SUMMARY**

### **7.1 Indicator Parameters**

The pH and specific conductance values for the ground water samples collected from monitoring wells MW-1, MW-3, MW-4, MW-5, MW-6, and MW-10 are within drinking water standards. Total organic carbon was detected in the ground water samples collected from monitoring wells MW-1 (<0.5 to 0.67 mg/l), MW-3 (0.6 mg/l), and MW-6 (<0.5 to 9 mg/l) and was not detected in ground water samples collected from monitoring wells MW-4, MW-5, and MW-10. Ground water samples collected from monitoring wells MW-1, MW-5, and MW-10 were below the reporting limits for TOX. The ground water samples collected from monitoring well MW-6 had concentrations of TOX ranging from 8.1 to 12.9  $\mu\text{g/l}$ . The ground water samples collected from monitoring well MW-3 had concentrations of TOX ranging from below the reporting limits to 5.8  $\mu\text{g/l}$ . Ground water samples collected from monitoring well MW-4 had concentrations of TOX ranging from 57.8 to 76.1  $\mu\text{g/l}$ .

### **7.2 Ground Water Quality Parameters**

Dissolved metals (arsenic, barium, cadmium, chromium, lead, mercury, nickel, selenium, and silver) were below the reporting limits except for barium in the ground water samples collected from monitoring wells MW-1 and MW-3. Barium was reported in the ground water samples obtained from monitoring wells MW-1 and MW-3 at concentrations of 70 and 320  $\mu\text{g/l}$ , respectively.

Total phosphate, sulfate, and chloride concentrations reported in the sample collected from monitoring wells MW-1 and MW-3 were within drinking water standards.

### **7.3 Hazardous Constituent Parameters**

Hazardous constituents [dissolved metals (antimony, copper, and thallium) and VOCs] were not detected in ground water samples analyzed with the exception of TCE in the sample collected from monitoring well MW-4. The concentration of TCE in the sample collected from monitoring well MW-4 was 83  $\mu\text{g/l}$ . Trichloroethene has been reported in several of the ground water samples collected from monitoring well MW-4 during previous quarterly sampling events.

The sample collected from monitoring well MW-4 during the fourteenth quarter reported a concentration of TCE approximately tenfold greater than the previous eight quarters. The elevated concentration of TCE reported during this monitoring round may be attributable to the use of air-rotary drilling methods for the installation of monitoring well MW-10. The air introduced to the subsurface during drilling may cause VOCs in the vadose zone to migrate downward at an accelerated rate, thereby increasing the concentration of TCE in the shallow ground water.

## **8.0 ABANDONMENT OF MONITORING WELL MW-4**

An approved permit for destruction of monitoring well MW-4 was received from the County of Los Angeles - Department of Health Services, Public Health Programs - Environmental Health on March 23, 1992. A copy of this permit is included in Appendix I.

A letter proposal regarding the abandonment of monitoring well MW-4 was submitted to California Environmental Protection Agency (CAL-EPA) Department of Toxic Substances Control (DTSC) on May 12, 1992. Following conversations with personnel from DTSC, a letter proposal was revised and submitted to DTSC on May 19, 1992. Written approval to abandon monitoring well MW-4 as described in the May 19, 1992, letter proposal was received from DTSC on May 22, 1992.

Abandonment field activities for monitoring well MW-4 were initiated on May 26, 1992, when the ground water pump was removed from the well. On May 27, 1992, the stainless steel well casing was perforated from 380 to 680 feet below ground surface. The completion depth of the well is 701 feet below ground surface, with the screened interval located from 677 to 697.5 feet below ground surface. Casing perforation was accomplished utilizing 20-foot-long perforation guns containing four 0.32 caliber charges per foot of gun. Fifteen perforation guns were utilized. The 0.32 caliber charges were set in sequence so that adjacent charges perforated opposite sides of the well. The strength of the charges was such that perforation of up to 18 inches from the point of initiation, including the well casing, annular material, and into the formation, was estimated. Perforation of the well casing was completed on the same day.

On May 28, 1992, the abandonment process was completed with the pumping of neat cement into the monitoring well. The neat cement contained a cement dispersing agent (Pozzolith 300R) to prolong the cement curing process, thereby allowing the entire monitoring well volume to be filled with cement at one time, as opposed to being done in stages. Filling the monitoring well volume at one time with neat cement created additional head to pressure cement out through the perforations and into the formation. A material safety data sheet (MSDS) for Pozzolith 300R is included in Appendix I.

A 2-inch tremie pipe was lowered in the monitoring well to approximately 693 feet below ground surface. Approximately 3.5-cubic yards of neat cement was pumped under pressure into the tremie pipe and out into the bottom of the monitoring well until water and/or neat cement was forced out the top of the well casing. Approximately 350 feet of tremie pipe was then removed from the hole. During removal of this 350 feet of tremie pipe, it was observed that the pipe was coated with water and not neat cement. Following removal of the 350 feet of tremie pipe, approximately 1 yard of neat cement was pumped into the tremie pipe remaining in the monitoring well until neat cement was forced out the top of the well casing. The remaining tremie pipe (approximately 347 feet) was then removed from the monitoring well, and a minimal volume (approximately 2 cubic feet) of neat cement was added to bring the level up to the top of the casing. On May 29, 1992, field observations made by Whittaker personnel noted that the level of neat cement in monitoring well MW-4 had dropped approximately 1 foot, and as a result, a minimal volume of neat cement was added.

Mr. Luis Ito of the DTSC was present on May 27 and 28, 1992, to observe monitoring well MW-4 abandonment activities. At the request of Mr. Ito, the surface completion of monitoring well MW-4 was not excavated following abandonment and now consists of a cement pad through which the cement-filled well casing extends approximately 1 foot above ground surface. The well casing extending above ground surface is encompassed within a metal pipe with locking metal cap. Additional protection is provided by four cement-filled metal pipes, one at each corner of the cement pad. Verbal approval to leave the surface completion in its present state was received by personnel of the County of Los Angeles on June 2, 1992.

## **9.0 RECOMMENDATIONS**

It is recommended that future sampling events continue to be conducted in accordance with the procedures set forth in the Area 317 Plan.

## **10.0 REMARKS**

The recommendations contained in this report represent our professional opinions. These opinions are based on currently available information and were developed in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

TABLE 1

POTENTIOMETRIC SURFACE ELEVATIONS  
RCRA GROUND WATER MONITORING WELLS  
WHITTAKER CORPORATION, BERMITE DIVISION

Well No.	MW-1	MW-3	MW-4	MW-5	MW-6	MW-10
Top of Casing Elevation*	1,561.32	1,538.51	1,538.43	1,493.37	1,521.09	1,537.49
Date	Potentiometric Surface Elevations*					
12/23/87	1,107.81	-- <sup>b</sup>				
01/27/88	1,108.03	1,109.51				
02/03/88	1,108.32	1,109.88				
02/04/88	1,108.36	1,109.14				
02/05/88	1,108.36	1,109.17				
02/09/88	1,108.24	1,109.13				
02/10/88	1,108.28	1,109.27				
02/12/88	1,108.28	1,109.27				
02/19/88	1,108.11	1,108.86				
03/28/88	1,107.69	1,108.23				
04/05/88	1,107.76	1,108.23				
04/12/88	1,107.66	1,108.23				
04/19/88	1,107.56	1,108.23				
04/26/88	1,107.61	1,108.23				
05/02/88	1,107.86	1,108.23				
07/27/88	1,103.58	1,104.19	1,102.61			
10/03/88	1,101.75	1,102.11	1,100.77			
01/23/89	1,099.82	1,100.25	1,098.92			
04/17/89	1,097.37	1,097.62	1,096.05			
07/27/89	1,094.67	1,094.85	1,093.53	1,093.02	1,093.15	
08/10/89	1,093.93	1,094.09	1,092.89	1,092.32	1,092.49	
08/18/89	1,093.62	1,093.76	1,092.64	1,092.03	1,092.19	
10/30/89	1,092.07	1,092.16	1,091.08	1,090.62	1,090.64	
01/24/90	1,090.56	1,090.54	1,089.68	1,089.17	1,089.50	
04/16/90	1,088.66	1,088.78	1,087.83	1,087.23	1,087.32	
07/16/90	1,083.56	1,083.53	1,082.29	1,081.41	1,081.85	
10/17/90	1,079.91	1,079.78	1,078.86	1,078.25	1,078.56	
01/28/91	1,076.52	1,076.54	1,075.46	1,074.64	1,074.91	
04/22/91	1,071.22	1,071.29	1,069.75	1,068.90	1,069.25	
07/17/91	1,063.63	1,063.79	1,061.66	1,060.53	1,061.14	
10/08/91	1,055.22	1,055.41	1,053.28	1,052.12	1,052.69	
01/29/92	1,051.88	1,052.29	1,050.63	1,049.76	1,050.06	1,050.57

\*NGVD = National Geodetic Vertical Datum.

<sup>b</sup>Measurement not recorded.

TABLE 2

**AREA 317 HISTORY OF INDICATOR PARAMETERS IN GROUND WATER MONITORING WELLS  
BERMITE DIVISION, WHITTAKER CORPORATION**

Well	Date	Quarter	pH	Hydrogen Ion Concentration	Conductance ( $\mu$ mhos/cm)	TOC (mg/l)	TOX ( $\mu$ g/l)
Detection Limit (Quarter 14)						0.5	5
MW-1	10/04/88	1	7.5	3.16E-08	579	<3	<100
	10/04/88	1	7.5	3.16E-08	617	<3	<100
	10/04/88	1	7.5	3.16E-08	599	<3	<100
	10/04/88	1	7.5	3.16E-08	595	<3	<100
	11/03/88	1					<100
	11/03/88	1					<100
	01/25/89	2	7.5	3.16E-08	567	5	<100
	01/25/89	2	7.5	3.16E-08	585	<3	<100
	01/25/89	2	7.4	3.98E-08	576	<3	<100
	01/25/89	2	7.5	3.16E-08	559	<3	<100
	04/17/89	3	7.2	6.31E-08		<3	<100
	04/17/89	3	7.2	6.31E-08		<3	<100
	04/17/89	3	7.2	6.31E-08		<3	<100
	04/17/89	3	7.2	6.31E-08		<3	<100
	07/27/89	4	7.5	3.16E-08	502	5	<100
	07/27/89	4	7.5	3.16E-08	495	<3	<100
	07/27/89	4	7.4	3.98E-08	502	<3	<100
	07/27/89	4	7.5	3.16E-08	502	<3	<100
	10/31/89	5	7.6	2.51E-08	525	<3	<100
	10/31/89	5	7.6	2.51E-08	539	<3	<100
	10/31/89	5	7.6	2.51E-08	525	<3	<100
	10/31/89	5	7.6	2.51E-08	508	<3	<100
	01/25/90	6	7.4	3.98E-08	580	<3	<100
	01/25/90	6	7.4	3.98E-08	571	<3	<100
	01/25/90	6	7.4	3.98E-08	566	<3	<100
	01/25/90	6	7.4	3.98E-08	564	<3	<100
	04/17/90	7	7.6	2.51E-08	501	<4	<20
	04/17/90	7	7.5	3.16E-08	506	<4	<20
	04/17/90	7	7.5	3.16E-08	506	<4	<20
	04/17/90	7	7.6	2.51E-08	501	<4	<20
	07/17/90	8	8.3	5.01E-09	560	<4	<20
	07/17/90	8	8.2	6.31E-09	560	<4	<20
	07/17/90	8	8.3	5.01E-09	499	<4	<20
	07/17/90	8	8.3	5.01E-09	499	<4	<20
	10/18/90	9	7.3	5.01E-08	544	<1	<100
	10/18/90	9	7.5	3.16E-08	544	<1	<100
	10/18/90	9	7.5	3.16E-08	544	<1	<100
	10/18/90	9	7.3	5.01E-08	544	<1	150
	01/29/91	10	7.5	3.16E-08	583	1.4	<5
	01/29/91	10	7.5	3.16E-08	561	1.4	<5
	01/29/91	10	7.5	3.16E-08	565	1.3	<5
	01/29/91	10	7.5	3.16E-08	581	1.3	<5
	04/23/91	11	7.7	2.00E-08	559	3.4	<5
	04/23/91	11	7.7	2.00E-08	558	1.3	<5
	04/23/91	11	7.7	2.00E-08	559	1.4	<5
	04/23/91	11	7.6	2.15E-08	558	1.2	<5
	07/19/91	12	7.2	6.31E-08	575	1.2	<5
	07/19/91	12	7.3	5.01E-08	576	1.3	<5
	07/19/91	12	7.4	3.98E-08	574	1.3	<5
	07/19/91	12	7.4	3.98E-08	574	1.1	<5
	10/08/91*	—	—	—	—	—	—
	03/13/92	14	7.5	3.16E-08	640	0.67	<5
	03/13/92	14	7.5	3.16E-08	638	<0.5	<5
	03/13/92	14	7.5	3.16E-08	637	<0.5	<5
	03/13/92	14	7.5	3.16E-08	640	<0.5	<5

TABLE 2 - continued

AREA 317 HISTORY OF INDICATOR PARAMETERS IN GROUND WATER MONITORING WELLS  
BERMITE DIVISION, WHITTAKER CORPORATION

Well	Date	Quarter	pH	Hydrogen Ion Concentration	Conductance (umhos/cm)	TOC (mg/l)	TOX (ug/l)
Detection Limit (Quarter 14)						0.5	5
MW-3	10/04/88	1	7.4	3.98E-08	697	<3	485
	10/04/88	1	7.5	3.16E-08	677	<3	410
	10/04/88	1	7.5	3.16E-08	730	<3	500
	10/04/88	1	7.5	3.16E-08	691	<3	<100
	11/03/88	1					<100
	11/03/88	1					<100
	01/25/89	2	7.8	1.58E-08	681	<3	<100
	01/25/89	2	7.6	2.51E-08	681	<3	<100
	01/25/89	2	7.6	2.51E-08	669	<3	<100
	01/25/89	2	7.9	1.26E-08	624	<3	<100
	04/17/89	3	7.3	5.01E-08		<3	<100
	04/17/89	3	7.3	5.01E-08		<3	<100
	04/17/89	3	7.3	5.01E-08		<3	<100
	04/17/89	3	7.3	5.01E-08		<3	<100
	07/27/89	4	7.5	3.16E-08	661	<3	<100
	07/27/89	4	7.5	3.16E-08	661	<3	<100
	07/27/89	4	7.5	3.16E-08	661	<3	<100
	07/27/89	4	7.5	3.16E-08	661	<3	<100
	10/31/89	5	7.5	3.16E-08	617	<3	<100
	10/31/89	5	7.5	3.16E-08	615	<3	<100
	10/31/89	5	7.5	3.16E-08	617	<3	<100
	10/31/89	5	7.6	2.51E-08	620	<3	<100
	01/25/90	6	7.1	7.94E-08	641	8	<100
	01/25/90	6	7.2	6.31E-08	645	<3	<100
	01/25/90	6	7.2	6.31E-08	645	8	<100
	01/25/90	6	7.2	6.31E-08	634	11	<100
	04/17/90	7	7.3	5.01E-08	588	<4	<20
	04/17/90	7	7.3	5.01E-08	596	<4	<20
	04/17/90	7	7.3	5.01E-08	590	<4	<20
	04/17/90	7	7.4	3.98E-08	586	<4	<20
	07/17/90	8	8.3	5.01E-09	614	<4	<20
	07/17/90	8	8.3	5.01E-09	580	<4	<20
	07/17/90	8	8.2	6.31E-09	580	<4	<20
	07/17/90	8	8.1	7.94E-09	580	<4	<20
	10/18/90	9	7.6	2.51E-08	642	<1	<100
	10/18/90	9	7.6	2.51E-08	642	1.2	<100
	10/18/90	9	7.6	2.51E-08	642	<1	<100
	10/18/90	9	7.7	2.00E-08	642	<1	<100
	01/29/91	10	7.2	6.31E-08	655	2.4	<5
	01/29/91	10	7.3	5.01E-08	660	2.3	<5
	01/29/91	10	7.3	5.01E-08	655	2.2	<5
	01/29/91	10	7.3	5.01E-08	655	1.8	<5
	04/23/91	11	7.6	2.51E-08	630	1.4	<5
	04/23/91	11	7.5	3.16E-08	630	1.5	<5
	04/23/91	11	7.5	3.16E-08	629	3.6	<5
	04/23/91	11	7.6	2.51E-08	628	1.6	<5
	07/19/91	12	7.1	7.94E-08	636	1.3	<5
	07/19/91	12	7.2	6.31E-08	630	1.3	<5
	07/19/91	12	7.3	5.01E-08	635	1.1	<5
	07/19/91	12	7.3	5.01E-08	631	1.4	<5
	10/09/91	13	7.6	2.51E-08	642	<0.5	<5
	10/09/91	13	7.6	2.51E-08	643	<0.5	<5
	10/09/91	13	7.7	2.00E-08	640	<0.5	<5
	10/09/91	13	7.7	2.00E-08	642	<0.5	<5
	01/30/92	14	7.5	3.16E-08	651	0.6	<5
	01/30/92	14	7.4	3.16E-08	648	0.6	<5
	01/30/92	14	7.4	3.16E-08	647	0.6	5.8
	01/30/92	14	7.5	3.16E-08	644	0.6	<5

TABLE 2 - continued

**AREA 317 HISTORY OF INDICATOR PARAMETERS IN GROUND WATER MONITORING WELLS  
BERMITE DIVISION, WHITTAKER CORPORATION**

Well	Date	Quarter	pH	Hydrogen Ion Concentration	Conductance (umhos/cm)	TOC (mg/l)	TOX (ug/l)
Detection Limit (Quarter 14)						0.5	5
MW-4	10/04/88	1	7.6	2.51E-08	595	<3	<100
	10/04/88	1	7.7	2.00E-08	622	<3	140
	10/04/88	1	7.7	2.00E-08	626	<3	120
	10/04/88	1	7.7	2.00E-08	579	<3	100
	11/03/88	1					<100
	11/03/88	1					<100
	01/25/89	2	7.6	2.51E-08	527	<3	<100
	01/25/89	2	7.6	2.51E-08	513	<3	<100
	01/25/89	2	7.5	3.16E-08	520	<3	<100
	01/25/89	2	7.5	3.16E-08	520	<3	<100
	04/17/89	3	7.4	3.98E-08		<3	3060
	04/17/89	3	7.4	3.98E-08		4	3080
	04/17/89	3	7.5	3.16E-08		<3	4080
	04/17/89	3	7.5	3.16E-08		<3	4300
	07/27/89	4	7.8	1.58E-08	595	<3	990
	07/27/89	4	7.7	2.00E-08	595	8	730
	07/27/89	4	7.8	1.58E-08	595	4	910
	07/27/89	4	7.8	1.58E-08	599	<3	800
	10/31/89	5	7.7	2.00E-08	559	<3	160
	10/31/89	5	7.6	2.51E-08	577	<3	110
	10/31/89	5	7.6	2.51E-08	573	<3	130
	10/31/89	5	7.6	2.51E-08	573	<3	110
	01/25/90	6	7.6	2.51E-08	587	4	119
	01/25/90	6	7.6	2.51E-08	574	7	114
	01/25/90	6	7.6	2.51E-08	574	8	114
	01/25/90	6	7.6	2.51E-08	574	8	<100
	04/17/90	7	7.7	2.00E-08	535	<4	<20
	04/17/90	7	7.6	2.51E-08	527	<4	<20
	04/17/90	7	7.6	2.51E-08	521	<4	<20
	04/17/90	7	7.6	2.51E-08	521	<4	<20
	07/17/90	8	8.4	3.98E-09	515	<4	<20
	07/17/90	8	8.4	3.98E-09	515	<4	<20
	07/17/90	8	8.4	3.98E-09	515	<4	<20
	07/17/90	8	8.3	5.01E-09	515	<4	<20
	10/18/90	9	7.5	3.16E-08	544	<1	<100
	10/18/90	9	7.5	3.16E-08	544	<1	<100
	10/18/90	9	7.5	3.16E-08	544	<1	<100
	10/18/90	9	7.6	2.51E-08	544	<1	<100
	01/29/91	10	7.6	2.51E-08	583	1.9	5
	01/29/91	10	7.6	2.51E-08	567	1.8	<5
	01/29/91	10	7.6	2.51E-08	567	2.4	<5
	01/29/91	10	7.6	2.51E-08	565	2.3	<5
	04/23/91	11	7.8	1.58E-08	540	3.0	<5
	04/23/91	11	7.8	1.58E-08	541	1.3	<5
	04/23/91	11	7.8	1.58E-08	541	1.3	<5
	04/23/91	11	7.9	1.26E-08	542	1.2	<5
	07/19/91	12	7.6	2.51E-08	544	1.5	<5
	07/19/91	12	7.6	2.51E-08	540	1.5	<5
	07/19/91	12	7.6	2.51E-08	542	1.4	<5
	07/19/91	12	7.7	2.00E-08	542	1.5	<5
	10/09/91	13	7.9	1.26E-08	542	<0.5	5
	10/09/91	13	7.9	1.26E-08	544	<0.5	<5
	10/09/91	13	7.9	1.26E-08	542	<0.5	<5
	10/09/91	13	7.8	1.58E-08	541	<0.5	<5
	01/30/92	14	7.6	2.51E-08	548	<0.5	57.8
	01/30/92	14	7.3	5.01E-08	546	<0.5	76.1
	01/30/92	14	7.7	2.00E-08	547	<0.5	68.8
	01/30/92	14	7.6	2.51E-08	550	<0.5	74.4

TABLE 2 - continued

AREA 317 HISTORY OF INDICATOR PARAMETERS IN GROUND WATER MONITORING WELLS  
BERMITE DIVISION, WHITTAKER CORPORATION

Well	Date	Quarter	pH	Hydrogen Ion Concentration	Conductance (umhos/cm)	TOC (mg/l)	TOX (ug/l)
Detection Limit (Quarter 14)						0.5	5
MW-5	10/31/89	5	7.7	2.00E-08	544	<3	<100
	10/31/89	5	7.6	2.51E-08	541	<3	<100
	10/31/89	5	7.6	2.51E-08	544	<3	<100
	10/31/89	5	7.6	2.51E-08	544	<3	<100
	01/25/90	6	7.5	3.16E-08	585	8	<100
	01/25/90	6	7.5	3.16E-08	583	9	<100
	01/25/90	6	7.5	3.16E-08	571	9	<100
	01/25/90	6	7.5	3.16E-08	574	<3	<100
	04/17/90	7	7.6	2.51E-08	509	<4	<20
	04/17/90	7	7.6	2.51E-08	508	<4	<20
	04/17/90	7	7.6	2.51E-08	516	<4	<20
	04/17/90	7	7.6	2.51E-08	514	<4	<20
	07/19/90	8	8.0	1.00E-08	572	<4	<20
	07/19/90	8	8.0	1.00E-08	560	<4	<20
	07/19/90	8	8.0	1.00E-08	542	<4	<20
	07/19/90	8	8.0	1.00E-08	566	<4	<20
	10/18/90	9	7.6	2.51E-08	544	<1	<100
	10/18/90	9	7.7	2.00E-08	544	<1	<100
	10/18/90	9	7.7	2.00E-08	544	<1	<100
	10/18/90	9	7.8	1.58E-08	544	<1	<100
	01/29/91	10	7.6	2.51E-08	545	2.3	<5
	01/29/91	10	7.6	2.51E-08	554	2.3	<5
	01/29/91	10	7.6	2.51E-08	552	2.5	<5
	01/29/91	10	7.6	2.51E-08	556	2.0	<5
	04/23/91	11	7.8	1.58E-08	542	1.4	<5
	04/23/91	11	7.8	1.58E-08	543	1.6	<5
	04/23/91	11	8.1	7.94E-09	544	1.4	<5
	04/23/91	11	8.0	1.00E-08	543	2.0	<5
	07/19/91	12	7.7	2.00E-08	546	1.5	<5
	07/19/91	12	7.7	2.00E-08	548	1.4	<5
	07/19/91	12	7.7	2.00E-08	541	1.3	<5
	07/19/91	12	7.7	2.00E-08	542	1.4	<5
	10/09/91	13	7.9	1.26E-08	547	<0.5	<5
	10/09/91	13	7.9	1.26E-08	550	<0.5	<5
	10/09/91	13	7.9	1.26E-08	547	<0.5	<5
	10/09/91	13	7.9	1.26E-08	548	<0.5	<5
	03/26/92	14	7.8	1.58E-08	539	<0.5	<5
	03/26/92	14	7.8	1.58E-08	538	<0.5	<5
	03/26/92	14	7.8	1.58E-08	539	<0.5	<5
	03/26/92	14	7.8	1.58E-08	539	<0.5	<5

TABLE 2 - continued

**AREA 317 HISTORY OF INDICATOR PARAMETERS IN GROUND WATER MONITORING WELLS  
BERMITE DIVISION, WHITTAKER CORPORATION**

Well	Date	Quarter	pH	Hydrogen Ion Concentration	Conductance (umhos/cm)	TOC (mg/l)	TOX (ug/l)
Detection Limit (Quarter 14)						0.5	5
MW-6	10/31/89	5	7.7	2.00E-08	532	<3	<100
	10/31/89	5	7.7	2.00E-08	521	<3	<100
	10/31/89	5	7.7	2.00E-08	522	<3	<100
	10/31/89	5	7.7	2.00E-08	536	<3	<100
	01/25/90	6	7.6	2.51E-08	575	<3	<100
	01/25/90	6	7.8	1.58E-08	575	<3	<100
	01/25/90	6	7.7	2.00E-08	585	<3	<100
	01/25/90	6	7.6	2.51E-08	575	<3	<100
	04/17/90	7	7.7	2.00E-08	506	<4	<20
	04/17/90	7	7.6	2.51E-08	501	<4	<20
	04/17/90	7	7.6	2.51E-08	497	<4	<20
	04/17/90	7	7.6	2.51E-08	509	<4	<20
	07/19/90	8	7.9	1.26E-08	537	<4	<20
	07/19/90	8	7.9	1.26E-08	538	<4	<20
	07/19/90	8	7.9	1.26E-08	535	<4	<20
	07/19/90	8	8.0	1.00E-08	535	<4	<20
	10/18/90	9	7.8	1.58E-08	541	<1	<100
	10/18/90	9	7.7	2.00E-08	541	<1	<100
	10/18/90	9	7.7	2.00E-08	541	<1	<100
	10/18/90	9	7.7	2.00E-08	541	<1	<100
	01/29/91	10	7.6	2.51E-08	530	2.2	<5
	01/29/91	10	7.6	2.51E-08	532	1.9	<5
	01/29/91	10	7.6	2.51E-08	513	2.4	<5
	01/29/91	10	7.6	2.51E-08	538	1.9	<5
	04/23/91	11	7.9	1.26E-08	518	1.8	<5
	04/23/91	11	7.9	1.26E-08	518	1.5	<5
	04/23/91	11	8.1	7.94E-09	519	1.3	<5
	04/23/91	11	8.1	7.94E-09	518	1.3	<5
	07/19/91	12	7.7	2.00E-08	516	1.5	<5
	07/19/91	12	7.7	2.00E-08	519	1.5	<5
	07/19/91	12	7.7	2.00E-08	522	1.6	<5
	07/19/91	12	7.7	2.00E-08	520	1.5	<5
	10/09/91	13	7.9	1.26E-08	528	<0.5	<5
	10/09/91	13	7.9	1.26E-08	528	<0.5	<5
	10/09/91	13	8.0	1.00E-08	525	<0.5	<5
	10/09/91	13	7.9	1.26E-08	528	<0.5	<5
	01/30/92	14	7.6	2.51E-08	534	<0.5	9.8
	01/30/92	14	7.6	2.51E-08	534	0.9	8.1
	01/30/92	14	7.6	2.51E-08	535	<0.5	11.1
	01/30/92	14	7.6	2.51E-08	537	<0.5	12.9

TABLE 2 - continued

**AREA 317 HISTORY OF INDICATOR PARAMETERS IN GROUND WATER MONITORING WELLS  
BERMITE DIVISION, WHITTAKER CORPORATION**

Well	Date	Quarter	pH	Hydrogen Ion Concentration	Conductance (umhos/cm)	TOC (mg/l)	TOX (ug/l)
Detection Limit (Quarter 14)						0.5	5
MW-10	01/30/92	14	7.8	1.58E-08	624	<0.5	<5
	01/30/92	14	7.8	1.58E-08	623	<0.5	<5
	01/30/92	14	7.7	2.00E-08	627	<0.5	<5
	01/30/92	14	7.8	1.58E-08	627	<0.5	<5

\*Not sampled because water elevation dropped below elevation of sampling pump intake.

Legend:  $\mu$ mhos/cm = micromhos per centimeter

TOC = total organic carbon

mg/l = milligrams per liter

TOX = total organic halogens

ug/l = micrograms per liter

TABLE 3

**AREA 317 DISSOLVED METALS WATER QUALITY HISTORY--BERMITE DIVISION, WHITTAKER CORPORATION**  
 Concentrations in micrograms per liter (µg/l)

Monitoring Well	Date	Quarter	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper
MCL*				50	1,000	10	50	
MW-1	10/04/88	1	<100	<10	<100	<1	<10	<50
	01/25/89	2	<100	<10	<100	<1	<10	<50
	04/17/89	3	<100	<10	<100	<1	<10	<50
	07/27/89	4	<100	<10	<100	<1	<10	<50
	10/31/89	5	<100	<10	<100	<1	<10	<50
	01/25/90	6	<1,000	<1,000	<100	<100	<200	<100
	04/17/90	7	<1,000	<1,000	<100	<100	<200	<100
	07/17/90	8	<1,000	<1,000	<100	<100	<200	<100
	10/18/90	9	<100	<10	<100	<1	<10	100
	01/29/91	10	<100	<50	<100	<10	<50	<100
	04/23/91	11	<100	<50	<100	<10	<50	<100
	07/19/91	12	<100	<50	<100	<10	<50	<100
	10/09/91	13 <sup>b</sup>	--	--	--	--	--	--
	03/13/92	14	<100	<50	70	<10	<50	<100
MW-3	10/04/88	1	<100	<10	<100	<1	<10	<50
	01/25/89	2	<100	<10	<100	<1	<10	<50
	04/17/89	3	<100	<10	<100	<1	<10	<50
	07/27/89	4	<100	<10	<100	<1	<10	<50
	10/31/89	5	<100	<10	<100	<1	<10	<50
	01/25/90	6	<1,000	<1,000	<100	<100	<200	<100
	04/17/90	7	<1,000	<1,000	<100	<100	<200	<100
	07/17/90	8	<1,000	<1,000	<100	<100	<200	<100
	10/18/90	9	<100	<10	<100	<1	<10	100
	01/29/91	10	<100	<50	<100	<10	<50	<100
	04/23/91	11	<100	<50	<100	<10	<50	<100
	07/19/91	12	<100	<50	<100	<10	<50	<100
	10/09/91	13	<100	<50	<100	<10	<50	<100
	01/30/92	14	<100	<50	320	<10	<50	<100

\*EPA Primary Drinking Water Standards--Maximum Contaminant Level.

<sup>b</sup>Not sampled because water elevation dropped below elevation of sampling pump intake.

TABLE 3 - continued

DISSOLVED METALS WATER QUALITY HISTORY--BERMITE DIVISION, WHITTAKER CORPORATION  
Concentrations in micrograms per liter ( $\mu\text{g/l}$ )

Monitoring Well	Date	Quarter	Lead	Mercury	Nickel	Selenium	Silver	Thallium
MCL*			50		2	10	50	
MW-1	10/04/88	1	<10	<1	---	<5	<10	<100
	01/25/89	2	<10	<1	---	<5	<10	<100
	04/17/89	3	<10	<1	---	<5	<10	<100
	07/27/89	4	<10	<1	---	<5	<10	<100
	10/31/89	5	<10	<1	---	<5	---	<100
	01/25/90	6	<800	<1	<100	<2,000	<100	<300
	04/17/90	7	<800	<1	<100	<2,000	<100	<300
	07/17/90	8	<800	<1	<100	<2,000	<100	<300
	10/18/90	9	<10	<1	---	<5	---	<100
	01/29/91	10	<50	<1	---	<10	---	<100
	04/23/91	11	<50	<1	---	<10	---	<100
	07/19/91	12	<50	<1	---	<10	---	<100
	10/09/91	13 <sup>c</sup>	--	--	---	--	---	--
	03/13/92	14	<50	<1	---	<10	---	<100
MW-3	10/04/88	1	<10	<1	---	<5	<10	<100
	01/25/89	2	<10	<1	---	<5	<10	<100
	04/17/89	3	<10	<1	---	<5	<10	<100
	07/27/89	4	<10	<1	---	<5	<10	<100
	10/31/89	5	<10	<1	---	<5	---	<100
	01/25/90	6	<800	<1	<100	<2,000	<100	<300
	04/17/90	7	<800	<1	<100	<2,000	<100	<300
	07/17/90	8	<800	<1	<100	<2,000	<100	<300
	10/18/90	9	<10	<1	---	<5	---	<100
	01/29/91	10	<50	<1	---	<10	---	<100
	04/23/91	11	<50	<1	---	<10	---	<100
	07/19/91	12	<50	<1	---	<10	---	<100
	10/09/91	13	<50	<1	---	<10	---	<100
	01/30/92	14	<50	<1	---	<10	<10	<100

\*EPA Primary Drinking Water Standards--Maximum Contaminant Level.

°Test not run.

°Not sampled because water elevation dropped below elevation of sampling pump intake.

TABLE 4

**AREA 317 HISTORY OF GROUND WATER QUALITY PARAMETERS--NUTRIENTS  
BERMITE DIVISION, WHITTAKER CORPORATION**

Monitoring Well	Date	Quarter	Total Phosphate (mg/l) <sup>a</sup>	SO <sub>4</sub> (mg/l)	Cl <sub>2</sub> (mg/l)
MCL <sup>b</sup>			NA <sup>c</sup>	250	250
MW-1	10/04/88	1	<0.1	11	
	01/25/89	2	<0.1	22	
	04/17/89	3	<0.1	11	
	07/27/89	4	<0.1	13	
	10/31/89	5	<0.1	10	83
	01/25/90	6	<0.1	16	85
	04/17/90	7	<0.1	11	88
	07/17/90	8	<0.1	10	82
	10/18/90	9	<0.1	23	98
	01/29/91	10	<0.1	8	96
	04/23/91	11	<0.1	10	100
	07/19/91	12	<0.1	11	97
	10/09/91 <sup>d</sup>	13	--	--	--
	03/13/92	14	<0.1	13	131
MW-3	10/04/88	1	<0.1	73	
	01/25/89	2	<0.1	74	
	04/17/89	3	<0.1	9	
	07/27/89	4	<0.1	65	
	10/31/89	5	<0.1	68	35
	01/25/90	6	<0.1	74	36
	04/17/90	7	<0.1	60	46
	07/17/90	8	<0.1	67	39
	10/23/90	9	<0.1	15	34
	01/29/91	10	<0.1	80	54
	04/23/91	11	<0.1	77	34
	07/19/91	12	<0.1	85	45
	10/09/91	13	<0.1	34	37
	01/30/92	14	<0.1	85	33
MW-4	10/04/88	1	<0.1	31	
	01/25/89	2	<0.1	43	
	04/17/89	3	<0.1	36	
	07/27/89	4	<0.1	33	

<sup>a</sup>Milligrams per liter (parts per million - ppm).

<sup>b</sup>EPA Primary Drinking Water Standards--Maximum Contaminant Level.

<sup>c</sup>Not applicable.

<sup>d</sup>Not sampled because water elevation dropped below elevation of sampling pump intake.

TABLE 5

**AREA 317 VOLATILE ORGANIC COMPOUNDS IN GROUND WATER MONITORING WELLS**  
Concentrations in Micrograms per Liter ( $\mu\text{g/l}$ )

Monitoring Well	Date	Quarter	Acetone	Benzene	Bromo-dichloromethane	Bromoform	Bromomethane
SNARL <sup>a</sup>			700	70	100	100	NSL <sup>b</sup>
MW-1	01/27/88	(1) <sup>c</sup>	<50	<5	<5	<5	<10
	07/29/88	(1)	<50	<5	<5	<5	<10
	08/15/88	(1)	<50	<5	<5	<5	<10
	01/27/88	1	<50	<5	<5	<5	<10
	10/04/88	2	<50	<5	<5	<5	<10
	01/25/89	3	<50	<5	<5	<5	<10
	04/17/89	4	<50	<5	<5	<5	<5
MW-3	02/17/88	(1)	<50	<5	<5	<5	<10
	05/27/88	(1)	<50	<5	<5	<5	<10
	07/29/88	(1)	<50	<5	<5	<5	<10
	08/15/88	(1)	<50	<5	<5	<5	<10
	10/04/88	1	<50	<5	<5	<5	<10
	01/25/89	2	<50	<5	<5	<5	<10
	04/17/89	3	<50	<5	<5	<5	<10
MW-4	07/27/89	4	<50	<5	<5	<5	<5
	06/15/88	(1)	<50	<5	<5	<5	<10
	07/29/88	(1)	<50	<5	<5	<5	<10
	08/15/88	(1)	<50	<5	<5	<5	<10
	10/04/88	1	<50	<5	<5	<5	<10
	01/25/89	2	<50	<5	<5	<5	<10
	04/17/89	3	<50	<5	<5	<5	<10
	05/17/89	3	<300	<50	<50	<50	<300
	07/27/89	4	<625	<62.5	<62.5	<62.5	<62.5
	10/31/89	5	<50	<5	<5	<5	<5
	01/25/90	6	ND <sup>d</sup>	<12.5	<12.5	<12.5	<12.5
	04/17/90	7	ND	<5.0	<5.0	<5.0	<5.0
	07/17/90	8	-- <sup>e</sup>	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	--	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	--	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	--	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	--	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	--	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<100	<5	<10	<10	<10
MW-5	10/31/89	5	<50	<5	<5	<5	<5
	01/25/90	6	ND	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	ND	<5.0	<5.0	<5.0	<5.0
	07/19/90	8	--	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	--	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	--	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	--	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	--	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<10	<0.5	<0.5	<0.5	<0.5
	03/26/92	14	<10	<0.5	<1	<1	<1
MW-6	10/31/89	5	<50	<5	<5	<5	<5
	01/25/90	6	ND	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	ND	<5.0	<5.0	<5.0	<5.0
	07/19/90	8	--	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	--	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	--	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	--	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	--	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<10	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<10	<0.5	<1	<1	<1
MW-10	01/30/92	14	<10	<0.5	<1	<1	<1

<sup>a</sup>Suggested No-Adverse Response Level.

<sup>b</sup>No suggested level.

<sup>c</sup>Samples collected prior to implementation of quarterly sampling programs.

<sup>d</sup>Compound not detected.

<sup>e</sup>Not analyzed.

TABLE 5 - continued

AREA 317 VOLATILE ORGANIC COMPOUNDS IN GROUND WATER MONITORING WELLS  
Concentrations in Micrograms per Liter ( $\mu\text{g/L}$ )

Monitoring Well	Date	Quarter	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform
SNARL <sup>a</sup>			20	NSL	NSL	100
MW-1	01/27/88	(1) <sup>a</sup>	<5	<5	<10	<5
	07/29/88	(1)	<5	<5	<10	<5
	08/15/88	(1)	<5	<5	<10	<5
	10/04/88	1	<5	<5	<10	<5
	01/25/89	2	<5	<5	<10	<5
	04/17/89	3	<5	<5	<10	<5
	07/27/89	4	<5	<5	<5	<5
MW-3	02/17/88	(1)	<5	<5	<10	<5
	05/27/88	(1)	<5	<5	<10	<5
	07/29/88	(1)	<5	<5	<10	<5
	08/15/88	(1)	<5	<5	<10	<5
	10/04/88	1	<5	<5	<10	<5
	01/25/89	2	<5	<5	<10	<5
	04/17/89	3	<5	<5	<10	<5
MW-4	07/27/89	4	<5	<5	<5	<5
	06/15/88	(1)	<5	<5	<10	<5
	07/29/88	(1)	<5	<5	<10	<5
	08/15/88	(1)	<5	<5	<10	<5
	10/04/88	1	<5	<5	<10	<5
	01/25/89	2	<5	<5	<10	<5
	04/17/89	3	<5	<5	<10	<5
	05/17/89	3	<50	<50	<300	<50
	07/27/89	4	<62.5	<62.5	<62.5	<62.5
	10/31/89	5	<5	<5	<5	<5
	01/25/90	6	<12.5	<12.5	<12.5	<12.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0
	07/17/90	8	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5
MW-5	04/23/91	11	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5
	03/26/92	14	<1	<0.5	<1	<0.5
	10/31/89	5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0
MW-6	07/19/90	8	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<1	<0.5	<1	<0.5
	10/31/89	5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0
MW-10	01/30/92	14	<1	<0.5	<1	<0.5

<sup>a</sup>Suggested No-Adverse Response Level.

<sup>b</sup>No suggested level.

<sup>c</sup>Samples collected prior to implementation of quarterly sampling programs.

TABLE 5 - continued

AREA 317 VOLATILE ORGANIC COMPOUNDS IN GROUND WATER MONITORING WELLS  
Concentrations in Micrograms per Liter ( $\mu\text{g/l}$ )

Monitoring Well	Date	Quarter	Chloro-methane	Dibromo-chloro-methane	1,2-Dichloro-benzene	1,3-Dichloro-benzene	1,4-Dichloro-benzene
SNARL*			NSL <sup>b</sup>	100	130	130	130
MW-1	01/27/88	(1) <sup>c</sup>	<10	<5	<5	<5	<5
	07/29/88	(1)	<10	<5	<5	<5	<5
	08/15/88	(1)	<10	<5	<5	<5	<5
	10/04/88	1	<10	<5	<5	<5	<5
	01/25/89	2	<10	<5	<5	<5	<5
	04/17/89	3	<10	<5	<5	<5	<5
	07/27/89	4	<5	<5	<5	<5	<5
MW-3	02/17/88	(1)	<10	<5	<5	<5	<5
	05/27/88	(1)	<10	<5	<5	<5	<5
	07/29/88	(1)	<10	<5	<5	<5	<5
	08/15/88	(1)	<10	<5	<5	<5	<5
	10/04/88	1	<10	<5	<5	<5	<5
	01/25/89	2	<10	<5	<5	<5	<5
	04/17/89	3	<10	<5	<5	<5	<5
MW-4	07/27/89	4	<5	<5	<5	<5	<5
	06/15/88	(1)	<10	<5	<5	<5	<5
	07/29/88	(1)	<10	<5	<5	<5	<5
	08/15/88	(1)	<10	<5	<5	<5	<5
	10/04/88	1	<10	<5	<5	<5	<5
	01/25/89	2	<10	<5	<5	<5	<5
	04/17/89	3	<10	<5	<5	<5	<5
	05/17/89	3	<300	<50	<50	<50	<5
	07/27/89	4	<62.5	<62.5	<62.5	<62.5	<62.5
	10/31/89	5	<5	<5	<5	<5	<5
	01/25/90	6	<12.5	<12.5	<12.5	<12.5	<12.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0	<5.0
	07/17/90	8	<0.5	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5	<0.5
MW-5	04/23/91	11	<0.5	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<10	<10	<10	<10	<10
	10/31/89	5	<5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0	<5.0
MW-6	07/19/90	8	<0.5	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	<0.5	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<1	<1	<1	<1	<1
MW-10	01/30/92	14	<1	<1	<1	<1	<1

\*Suggested No-Adverse Response Level.

<sup>b</sup>No suggested level.<sup>c</sup>Samples collected prior to implementation of quarterly sampling programs.

TABLE 5 - continued

**AREA 317 VOLATILE ORGANIC COMPOUNDS IN GROUND WATER MONITORING WELLS**  
Concentrations in Micrograms per Liter ( $\mu\text{g/l}$ )

Monitoring Well	Date	Quarter	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	trans-1,2-Dichloroethene
SNARL <sup>a</sup>			NSL <sup>b</sup>	5	70	270
MW-1	01/27/88	(1) <sup>c</sup>	<5	<5	<5	<5
	07/29/88	(1)	<5	<5	<5	<5
	08/15/88	(1)	<5	<5	<5	<5
	10/04/88	1	<5	<5	<5	<5
	01/25/89	2	<5	<5	<5	<5
	04/17/89	3	<5	<5	<5	<5
	07/27/89	4	<5	<5	<5	<5
MW-3	02/17/88	(1)	<5	<5	<5	<5
	05/27/88	(1)	<5	<5	<5	<5
	07/29/88	(1)	<5	<5	<5	<5
	08/15/88	(1)	<5	<5	<5	<5
	10/04/88	1	<5	<5	<5	<5
	01/25/89	2	<5	<5	<5	<5
	04/17/89	3	<5	<5	<5	<5
MW-4	07/27/89	4	<5	<5	<5	<5
	06/15/88	(1)	<5	<5	<5	<5
	07/29/88	(1)	<5	<5	<5	<5
	08/15/88	(1)	<5	<5	<5	<5
	10/04/88	1	<5	<5	<5	<5
	01/25/89	2	<5	<5	<5	<5
	04/17/89	3	<5	<5	<5	<5
	05/17/89	3	<50	<50	<50	<50
	07/27/89	4	<62.5	<62.5	<62.5	<62.5
	10/31/89	5	<5	<5	<5	<5
	01/25/90	6	<12.5	<12.5	<12.5	<12.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0
	07/17/90	8	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5
MW-5	04/23/91	11	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<10	<10	<10	<10
	10/31/89	5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0
MW-6	07/19/90	8	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<1	<1	<1	<1
MW-10	01/30/92	14	<1	<1	<1	<1

\*Suggested No-Adverse Response Level.

<sup>b</sup>No suggested level.<sup>c</sup>Samples collected prior to implementation of quarterly sampling programs.

TABLE 5 - continued

**AREA 317 VOLATILE ORGANIC COMPOUNDS IN GROUND WATER MONITORING WELLS**  
Concentrations in Micrograms per Liter (µg/l)

Monitoring Well	Date	Quarter	1,2-Dichloro-propane	cis-1,3-Dichloro-propene	trans-1,3-Dichloro-propene	Ethyl-benzene	Methyl Ethyl Ketone
SNARL <sup>a</sup>			10	NSL <sup>b</sup>	NSL	NSL	750
MW-1	01/27/88	(1) <sup>c</sup>	<5	<5	<5	<5	<50
	07/29/88	(1)	<5	<5	<5	<5	<50
	08/15/88	(1)	<5	<5	<5	<5	<50
	10/04/88	1	<5	<5	<5	<5	<50
	01/25/89	2	<5	<5	<5	<5	<50
	04/17/89	3	<5	<5	<5	<5	<50
	07/27/89	4	<5	<5	<5	<5	<50
MW-3	02/17/88	(1)	<5	<5	<5	<5	<50
	05/27/88	(1)	<5	<5	<5	<5	<50
	07/29/88	(1)	<5	<5	<5	<5	<50
	08/15/88	(1)	<5	<5	<5	<5	<50
	10/04/88	1	<5	<5	<5	<5	<50
	01/25/89	2	<5	<5	<5	<5	<50
	04/17/89	3	<5	<5	<5	<5	<50
MW-4	07/27/89	4	<5	<5	<5	<5	<50
	06/15/88	(1)	<5	<10 <5	<5	<5	<5
	07/29/88	(1)	<5	<5	<5	<5	<5
	08/15/88	(1)	<5	<5	<5	<5	<5
	10/04/88	1	<5	<5	<5	<5	<5
	01/25/89	2	<5	<5	<5	<5	<5
	04/17/89	3	<5	<5	<5	<5	<5
	05/17/89	3	<50	<50	<50	<50	<300
	07/27/89	4	<62.5	<62.5	<62.5	<62.5	<62.5
	10/31/89	5	<5	<5	<5	<5	<50
	01/25/90	6	<12.5	<12.5	<12.5	<12.5	ND <sup>d</sup>
	04/17/90	7	<5.0	<5.0	<5.0	<5.0	ND
	07/17/90	8	<0.5	<0.5	<0.5	<0.5	-- <sup>e</sup>
	10/18/90	9	<0.5	<0.5	<0.5	<0.5	--
	01/29/91	10	<0.5	<0.5	<0.5	<0.5	--
	04/23/91	11	<0.5	<0.5	<0.5	<0.5	--
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	--
	10/09/91	13	<0.5	<0.5	<0.5	<0.5	<10
	01/30/92	14	<10	<20	<10	<5	<100
MW-5	10/31/89	5	<5	<5	<5	<5	<50
	01/25/90	6	<0.5	<0.5	<0.5	<0.5	ND
	04/17/90	7	<5.0	<5.0	<5.0	<5.0	ND
	07/19/90	8	<0.5	<0.5	<0.5	<0.5	--
	10/18/90	9	<0.5	<0.5	<0.5	<0.5	--
	01/29/91	10	<0.5	<0.5	<0.5	<0.5	--
	04/23/91	11	<0.5	<0.5	<0.5	<0.5	--
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	--
	10/09/91	13	<0.5	<0.5	<0.5	<0.5	<10
	03/26/92	14	<1	<2	<1	<0.5	<10
MW-6	10/31/89	5	<5	<5	<5	<5	<50
	01/25/90	6	<0.5	<0.5	<0.5	<0.5	ND
	04/17/90	7	<5.0	<5.0	<5.0	<5.0	ND
	07/19/90	8	<0.5	<0.5	<0.5	<0.5	--
	10/18/90	9	<0.5	<0.5	<0.5	<0.5	--
	01/29/91	10	<0.5	<0.5	<0.5	<0.5	--
	04/23/91	11	<0.5	<0.5	<0.5	<0.5	--
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	--
	10/09/91	13	<0.5	<0.5	<0.5	<0.5	<10
	01/30/92	14	<1	<2	<1	<0.5	<10
MW-10	01/30/92	14	<1	<2	<1	<0.5	<10

<sup>a</sup>Suggested No-Adverse Response Level.<sup>b</sup>No suggested level.<sup>c</sup>Samples collected prior to implementation of quarterly sampling programs.<sup>d</sup>Compound not detected.<sup>e</sup>Not analyzed.

TABLE 5 - continued

AREA 317 VOLATILE ORGANIC COMPOUNDS IN GROUND WATER MONITORING WELLS  
Concentrations in Micrograms per Liter ( $\mu\text{g/l}$ )

Monitoring Well	Date	Quarter	Methylene Chloride	1,1,2,2-Tetrachloroethane	Tetra-chloroethene	Toluene
SNARL <sup>a</sup>			150	NSL <sup>b</sup>	20	340
MW-1	01/27/88	(1) <sup>c</sup>	<5	<5	<5	<5
	07/29/88	(1)	<5	<5	<5	<5
	08/15/88	(1)	<5	<5	<5	<5
	10/04/88	1	<5	<5	<5	<5
	01/25/89	2	<5	<5	<5	<5
	04/17/89	3	<5	<5	<5	<5
	07/27/89	4	<5	<5	<5	<5
MW-3	02/17/88	(1)	<5	<5	<5	<5
	05/27/88	(1)	<5	<5	<5	<5
	07/29/88	(1)	<5	<5	<5	<5
	08/15/88	(1)	<5	<5	<5	<5
	10/04/88	1	<5	<5	<5	<5
	01/25/89	2	<5	<5	<5	<5
	04/17/89	3	<5	<5	<5	<5
MW-4	07/27/89	4	<5	<5	<5	<5
	06/15/88	(1)	<5	<5	<5	<5
	07/29/88	(1)	<5	<5	<5	<5
	08/15/88	(1)	<5	<5	<5	<5
	10/04/88	1	<5	<5	<5	<5
	01/25/89	2	<5	<5	<5	<5
	04/17/89	3	<5	<5	<5	<5
	05/17/89	3	<300	<50	<50	<50
	07/27/89	4	<62.5	<62.5	<62.5	<62.5
	10/31/89	5	<5	<5	<5	<5
	01/25/90	6	<12.5	<12.5	<12.5	<12.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0
	07/17/90	8	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5
MW-5	01/29/91	10	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5
	03/26/92	14	<0.5	<1	<0.5	<0.5
	10/31/89	5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0
	07/19/90	8	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5
MW-6	01/29/91	10	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<0.5	<1	<0.5	<0.5
	10/31/89	5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0
	07/19/90	8	<0.5	<0.5	<0.5	<0.5
MW-10	10/18/90	9	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5
MW-10	04/23/91	11	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5
MW-10	10/09/91	13	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<0.5	<1	<0.5	<0.5

<sup>a</sup>Suggested No-Adverse Response Level.

<sup>b</sup>No suggested level.

<sup>c</sup>Samples collected prior to implementation of quarterly sampling programs.

TABLE 5 - continued

**AREA 317 VOLATILE ORGANIC COMPOUNDS IN GROUND WATER MONITORING WELLS**  
Concentrations in Micrograms per Liter ( $\mu\text{g/L}$ )

Monitoring Well	Date	Quarter	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride	Xylenes
SNARL <sup>a</sup>			200	NSL <sup>b</sup>	75	NSL	2	420
MW-1	01/27/88	(1) <sup>c</sup>	<5	<5	<5	<5	<10	<5
	07/29/88	(1)	<5	<5	<5	<5	<10	<5
	08/15/88	(1)	<5	<5	<5	<5	<10	<5
	10/04/88	1	<5	<5	<5	<5	<10	<5
	01/25/89	2	<5	<5	<5	<5	<10	<5
	04/17/89	3	<5	<5	<5	<5	<10	<5
	07/27/89	4	<5	<5	<5	<5	<5	<5
MW-3	02/17/88	(1)	<5	<5	<5	<5	<10	<5
	05/27/88	(1)	<5	<5	<5	<5	<10	<5
	07/29/88	(1)	<5	<5	<5	<5	<10	<5
	08/15/88	(1)	<5	<5	<5	<5	<10	<5
	10/04/88	1	<5	<5	<5	<5	<10	<5
	01/25/89	2	<5	<5	<5	<5	<10	<5
	04/17/89	3	<5	<5	<5	<5	<5	<5
MW-4	07/27/89	4	<5	<5	<5	<5	<5	<5
	06/15/88	(1)	<5	<5	<5	<5	<10	<5
	07/29/88	(1)	<5	<5	<5	<5	<10	<5
	08/15/88	(1)	<5	<5	<5	<5	<10	<5
	10/04/88	1	<5	<5	<5	<5	<10	<5
	01/25/89	2	<5	<5	<5	<5	<10	<5
	04/17/89	3	<5	<5	4,800	<5	<10	<5
	05/17/89	3	<50	<50	7,200	<50	<300	<50
	07/27/89	4	<62.5	<62.5	1,390	<62.5	<62.5	<62.5
	10/31/89	5	<5	<5	195	<5	<5	<5
	01/25/90	6	<12.5	<12.5	126	<12.5	<12.5	<12.5
	04/17/90	7	<5.0	<5.0	7.8	<5.0	<5.0	<5.0
	07/17/90	8	<0.5	<0.5	3.0	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	1.0	<0.5	<0.5	<0.5
MW-5	01/29/91	10	<0.5	<0.5	1.8	<0.5	<0.5	<0.5
	04/23/91	11	<0.5	<0.5	1.0	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	6.4	<0.5	<0.5	<0.5
	01/30/92	14	<5	<5	83	<15	<10	<10
	10/31/89	5	<5	<5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-6	04/17/90	7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	07/19/90	8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-10	01/30/92	14	<0.5	<0.5	<1	<1.5	<1	<1
	10/31/89	5	<5	<5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	07/19/90	8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-10	04/23/91	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<0.5	<0.5	<1	<1.5	<1	<1
	10/31/89	5	<5	<5	<5	<5	<5	<5
	01/25/90	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	04/17/90	7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-10	07/19/90	8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10/18/90	9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	01/29/91	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	04/23/91	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	07/19/91	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	10/09/91	13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	01/30/92	14	<0.5	<0.5	<1	<1.5	<1	<1
MW-10	01/30/92	14	<0.5	<0.5	<1	<1.5	<1	<1

<sup>a</sup>Suggested No Adverse Response Level.<sup>b</sup>No suggested level<sup>c</sup>Samples collected prior to implementation quarterly sampling programs.

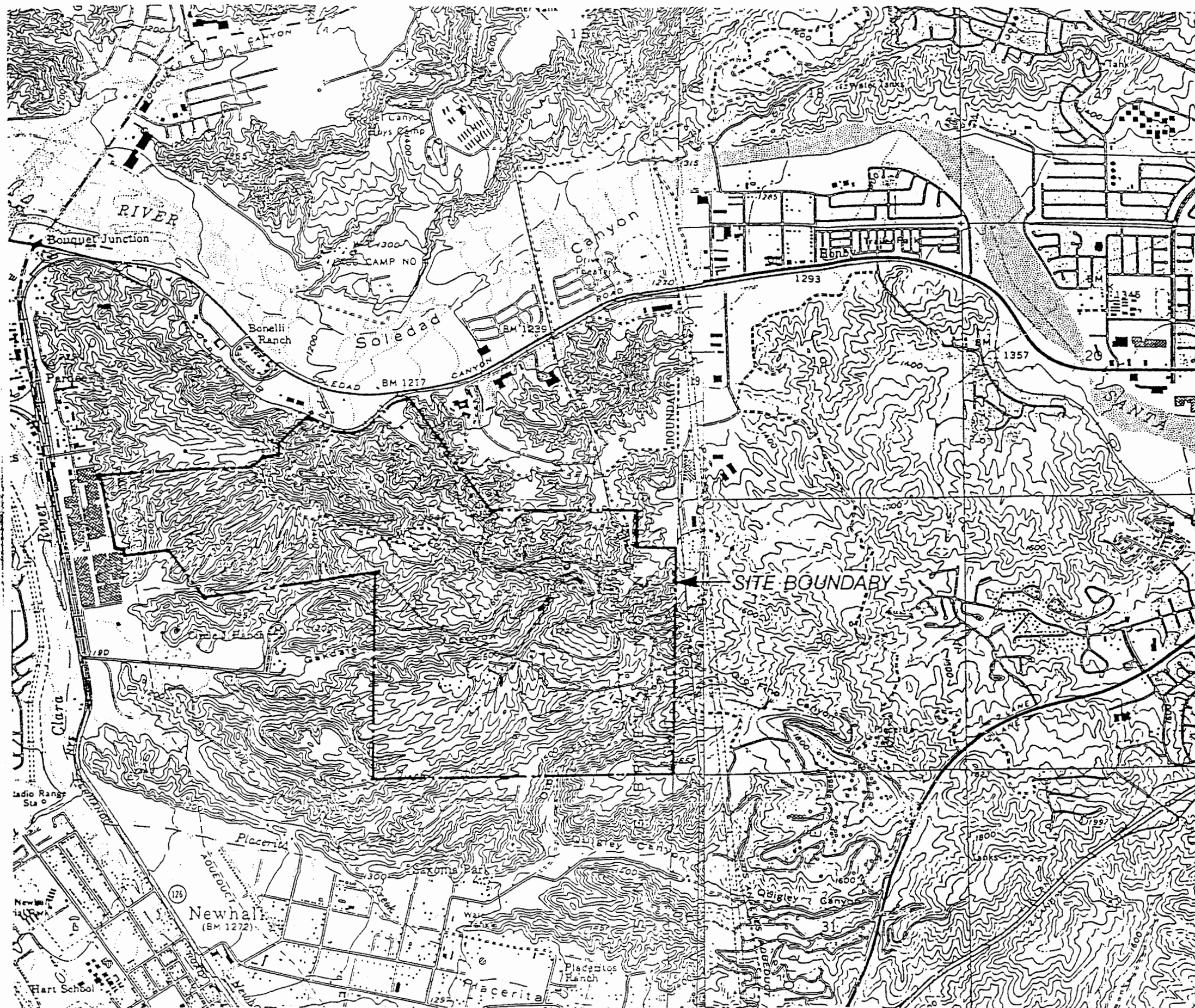
TABLE 6

**TCE/TOX CONCENTRATION IN MONITORING WELL MW-4**  
Concentrations in micrograms per liter ( $\mu\text{g/l}$ )

Monitoring Well	Date	Quarter	Trichloroethene	Total Organic Halogens (2) <sup>a</sup>
MW-4	06/15/88	(1) <sup>b</sup>	<5	
	07/29/88	(1) <sup>b</sup>	<5	
	08/15/88	(1) <sup>b</sup>	<5	
	10/04/88	1	<5	85
	11/03/88	1		<100
	01/25/89	2	<5	<100
	04/17/89	3	4,800	3,630
	05/17/89	3	7,200	
	07/27/89	4	1,390	858
	10/31/89	5	195	128
	01/25/90	6	126	99
	04/17/90	7	7.8	<20
	07/17/90	8	3.0	<20
	10/18/90	9	1.0	<100
	01/29/91	10	1.8	5
	04/23/91	11	1.0	<5
	07/19/91	12	<0.5	<5
	10/09/91	13	6.4	5
	01/30/9	14	83	69

<sup>a</sup>The mean of the replicate samples is reported.

<sup>b</sup>Samples collected before quarterly sampling.

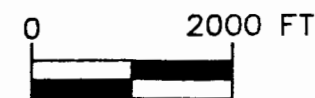


GENERAL NOTES:  
BASE MAPS FROM U.S.G.S.  
MINT CANYON & NEWHALL,  
7.5 MINUTE TOPOGRAPHIC  
PHOTOREVISED 1988

----- APPROXIMATE SITE LOCATION BOUNDARY



QUADRANGLE LOCATION



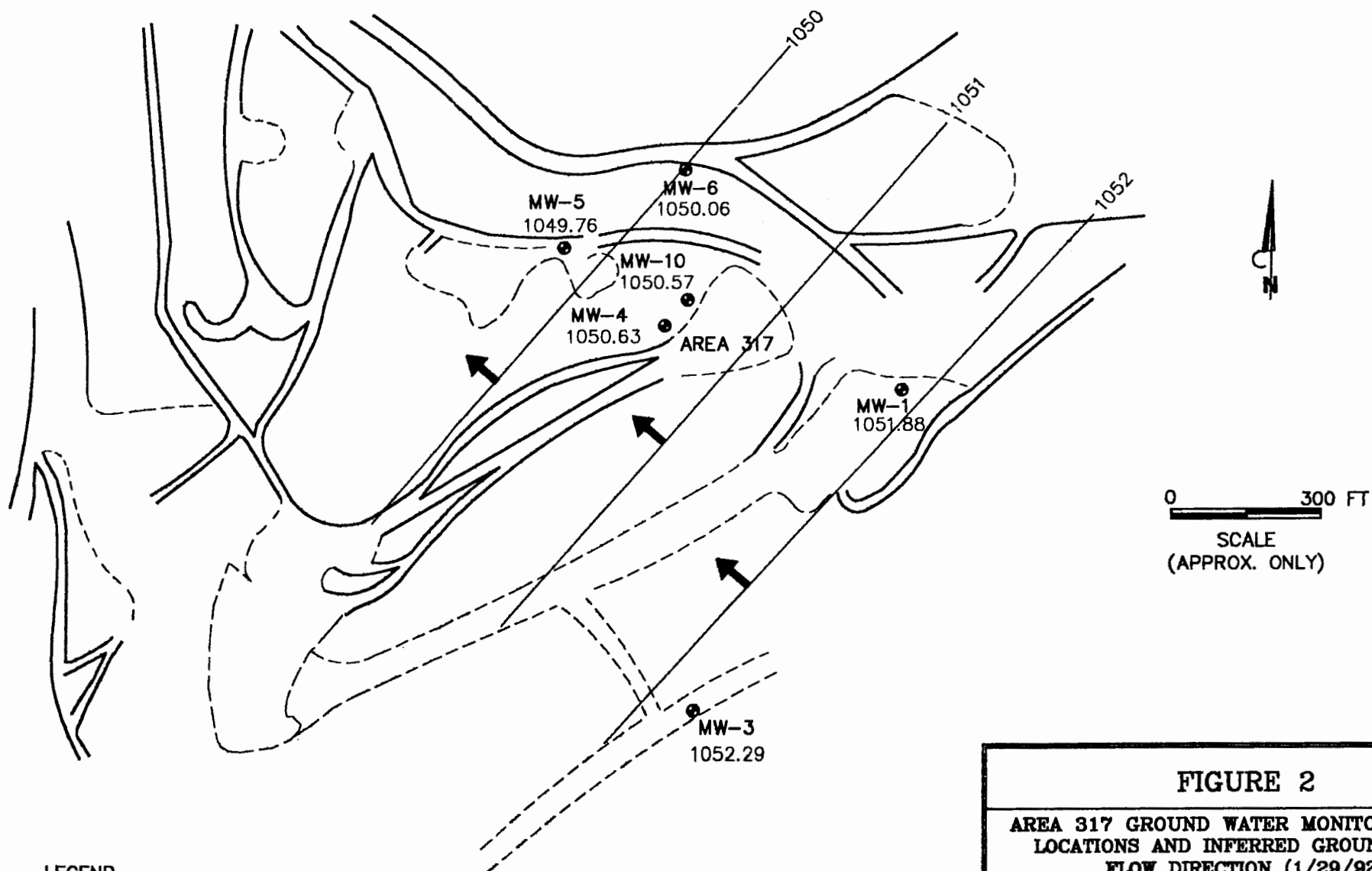
SCALE 1 : 24,000

FIGURE 1

# SITE LOCATION

WHITTAKER CORPORATION, BERMITE DIVISION  
22116 WEST SOLEDAD CANYON ROAD  
SANTA CLARITA, CALIFORNIA

Project No. WH101	Drawn By HDA	Acton * Mickelson * van Dam, Consulting Scientists, Engineers and Geologists 5090 Robert J. Mathews Parkway, El Dorado Hills, California 9576 (916) 839-7550
File No. ---	Prepared By MAA	
Revision No.	Reviewed By MAA	



# **LEGEND**

- MW-1 MONITORING WELL LOCATION
- 1051.88 GROUND WATER ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- 1052 — INFERRED GROUND WATER CONTOUR IN FEET RELATIVE TO MEAN SEA LEVEL
- ➔ INFERRED GROUND WATER FLOW DIRECTION

**FIGURE 2**

**AREA 317 GROUND WATER MONITORING WELL  
LOCATIONS AND INFERRED GROUNDWATER  
FLOW DIRECTION (1/29/92)  
WHITTAKER CORPORATION, BERMITE DIVISION**

**22116 WEST SOLEDAD CANYON ROAD  
SANTA CLARITA, CALIFORNIA**

Project No. WH01.15	Drawn By HDA	Acton * Mickelson * van Dam, Inc. Consulting Scientists, Engineers, and Geologists 5090 Robert J. Mathews Parkway, #4 El Dorado Hills, California 95762 (916) 939-7550
File No. —	Prepared By MAA	
Revision No. 1	Reviewed By MAA	

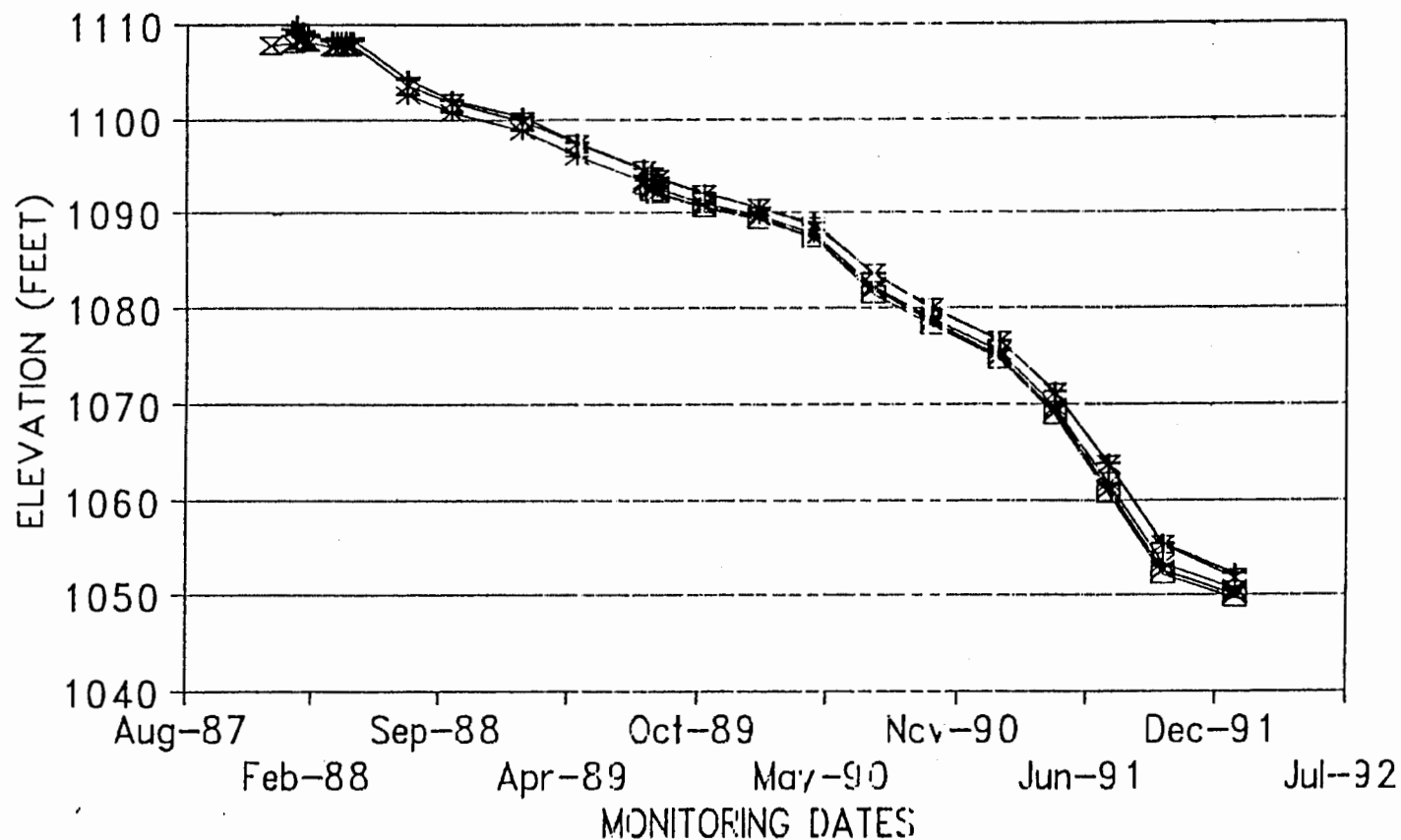


FIGURE 3

POTENTIOMETRIC SURFACE ELEVATIONS (THROUGH JANUARY 1992)

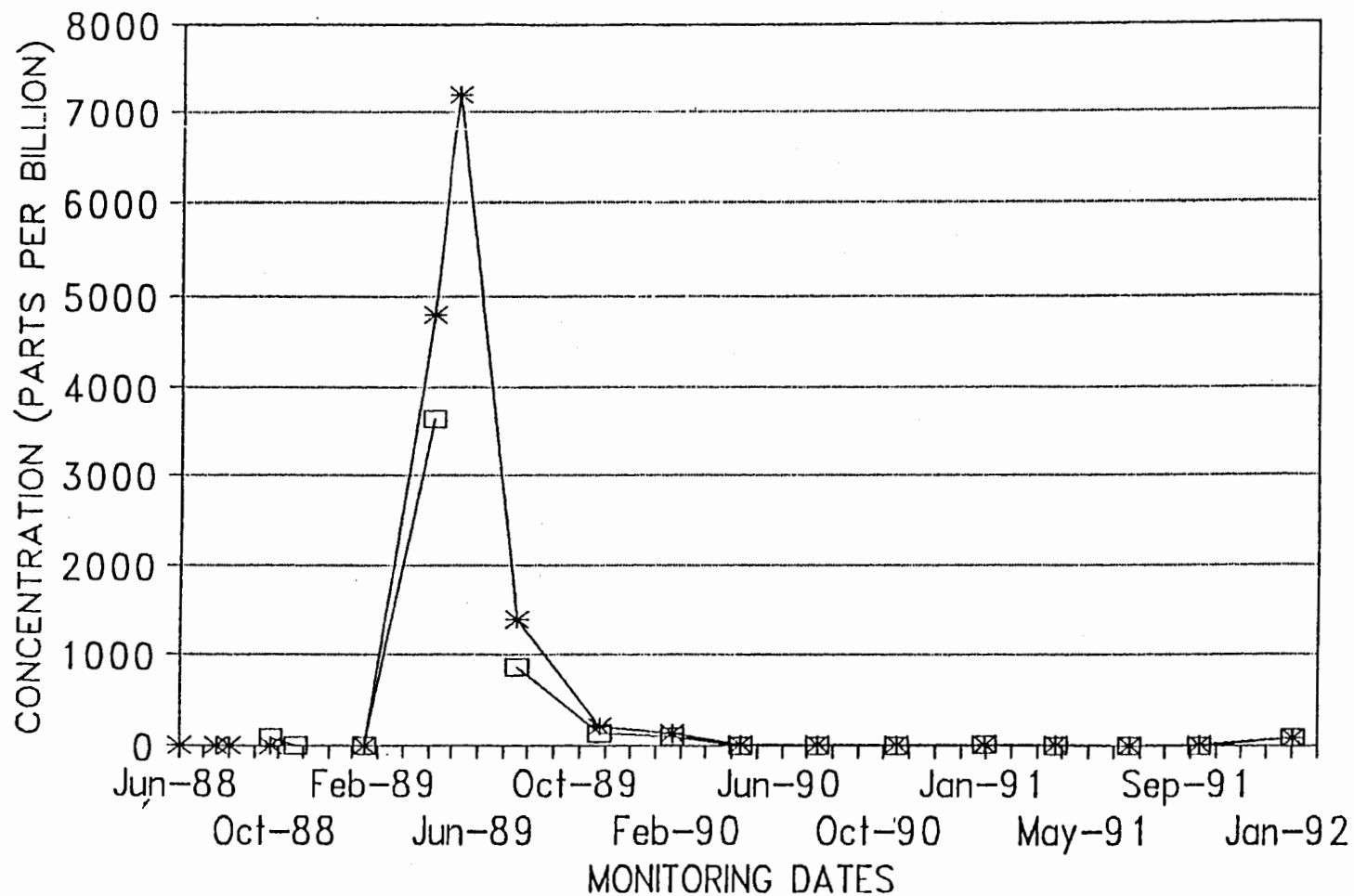
Whittaker Corporation - Bermite Division

22116 West Soledad Canyon Road

Santa Clarita, California

Project No. WHI01.15	Drawn EAF	Acton • Mickelson • van Dam, Inc. Consulting Scientists, Engineers, and Geologists 5090 Robert J. Mathews Parkway, #4 El Dorado Hills, California 95762 (916) 939-7550
File No. 3WHI0115	Prepared EAF 5/26/92	
Revision	Reviewed	

—x— MW-1    ---- MW-3    —\*— MW-4  
 —□— MW-5    —>— MW-6    —□— MW-10



—\*— TCE —□— TOX

FIGURE 4

TCE/TOX CONCENTRATION HISTORY - MONITORING WELL 4  
Whittaker Corporation - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Project No. WHI01.15	Drawn EAF	Acton • Mickelson • van Dam, Inc. Consulting Scientists, Engineers, and Geologists 5090 Robert J. Mathews Parkway, #4 El Dorado Hills, California 95762 (916) 939-7550
File No. 4WHI0115	Prepared EAF 5/28/92	
Revision	Reviewed	

**APPENDIX A**  
**DOCUMENT SUBMITTAL CHRONOLOGY**

## **APPENDIX A**

### **DOCUMENT SUBMITTAL CHRONOLOGY**

The following documents have been submitted to CAL-EPA and U.S. EPA, Region IX, in fulfillment of the Closure Plan regarding ground water monitoring at Areas 317 and 342:

- Whittaker Corporation, Bermite Division, Santa Clarita, CA CAD064573108, Facility Closure Plan Modifications, April 1987.
- Revised Ground Water Monitoring Plan for the 317/342 Area, October 8, 1987.
- Proposed Interim Status Ground Water Monitoring Sampling and Analysis Program, December 1987.
- Documentation Report--Construction and Development of Wells for Ground Water Monitoring of the 342 and 317 Areas, February 1988.
- Verification Sampling Results at Selected RCRA Units, March 1988.
- RCRA Ground Water Monitoring System--Proposed Final Configuration, May 1988.
- Ground Water Sampling and Analysis Plan, August 1988.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 1, December 1988.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 2, March 1989.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 3, July 1989.
- Specific Plan for a Ground Water Quality Assessment Program, June 1989.
- Interim Response Action Plan, 317 Area Soil and Ground Water Remediation, June 1989.
- Site Ground Water Sampling and Analysis Plan, Appendix IV of 40 CFR 264.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 4, September 1989.
- Statistical Analysis--Well MW-2 Versus MW-1 and MW-3, October 1989.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 5, March 1990.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 6, May 1990.

- RCRA Ground Water Sampling, Quarterly Sampling Report No. 7, June 1990.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 8, October 1990.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 9, January 1991.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 10, April 1991.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 11, July 1991.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 12, October 1991.
- RCRA Ground Water Sampling, Quarterly Sampling Report No. 13, January 1992.
- Specific Plan for a Ground Water Quality Assessment Program for the 317 Surface Impoundment Area.

## **APPENDIX B**

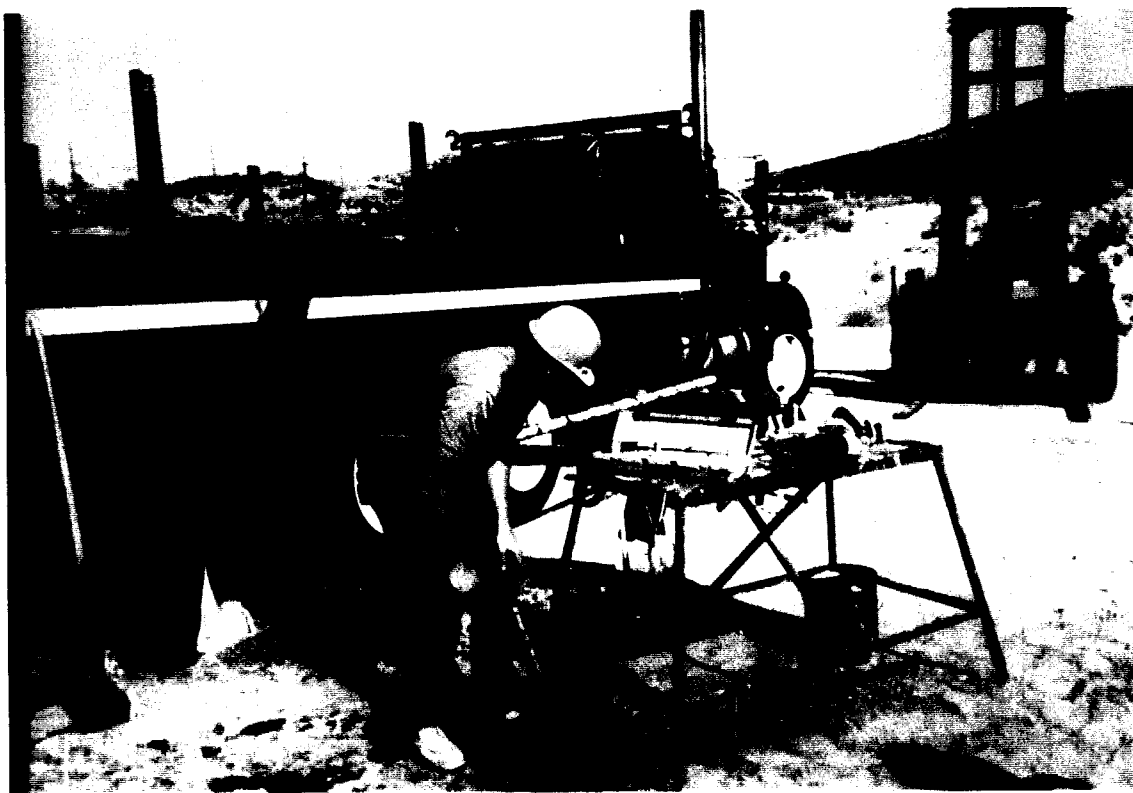
### **INSTALLATION OF MONITORING WELL MW-10**



**11-Inch Button Bit  
Used for Reaming Borings**



**Gel Used to Mix Drilling Fluid**



Checking Mud Weight



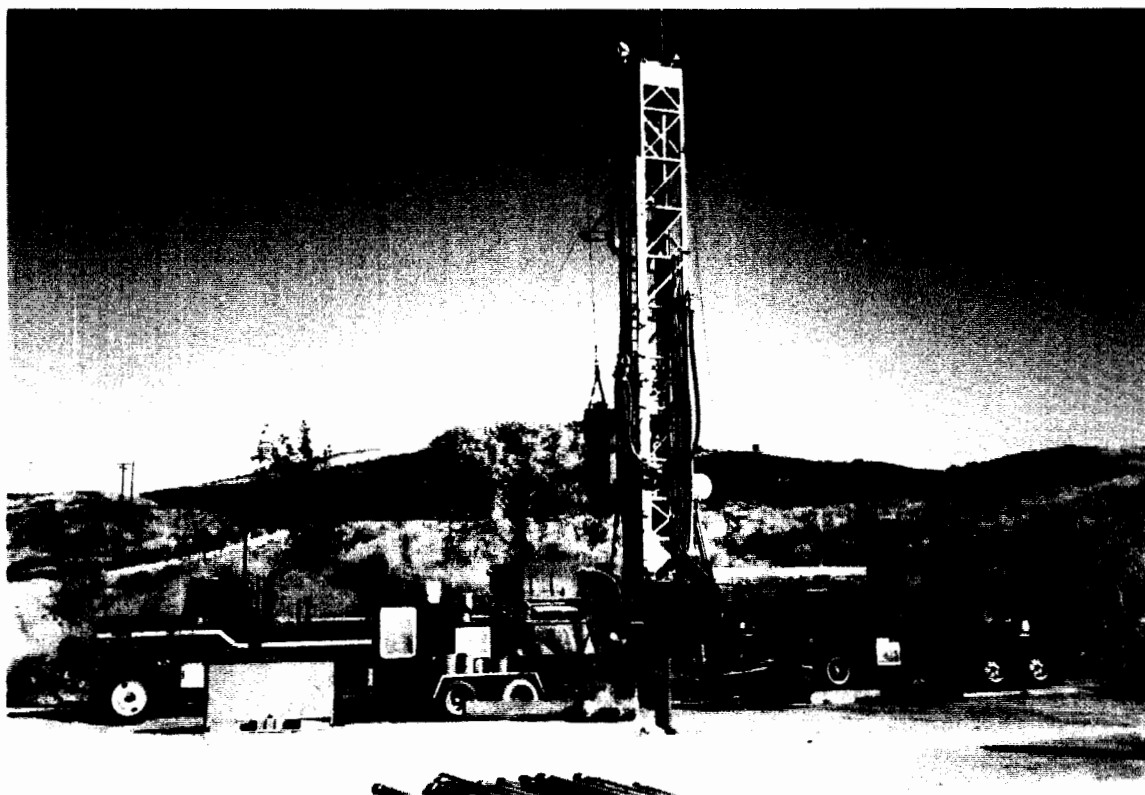
Checking Mud Viscosity



**Mud Tank**



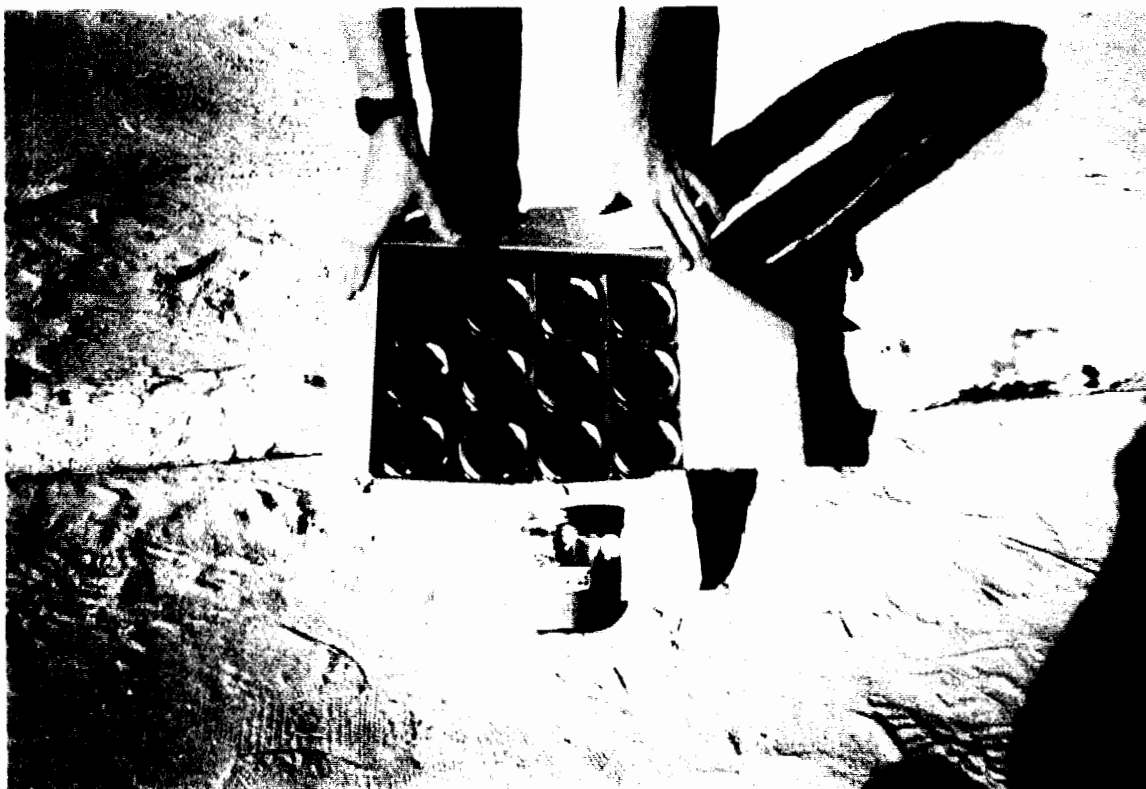
**Shaker/Desander**



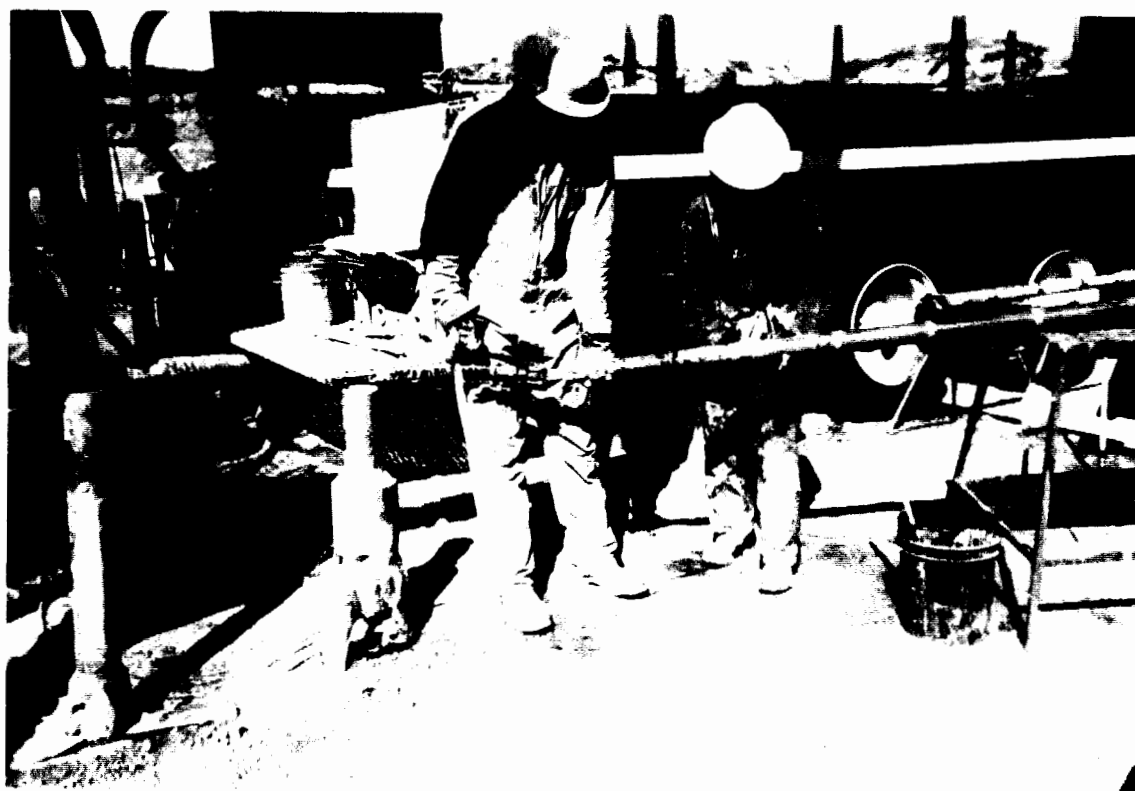
**Drilling Rig (Dresser T70W) and Support Vehicle**



**Checking Retrieving Mechanism for 94 Millimeter Sampler**



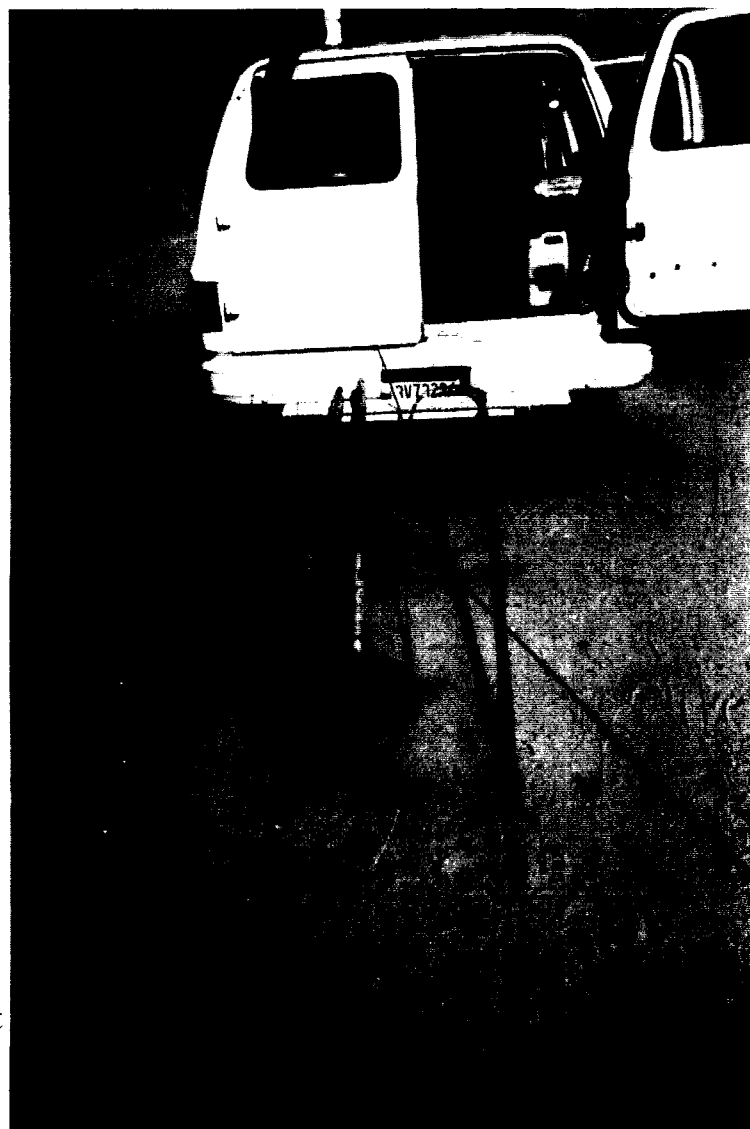
**Samples Collected Using Reverse Air Rotary**



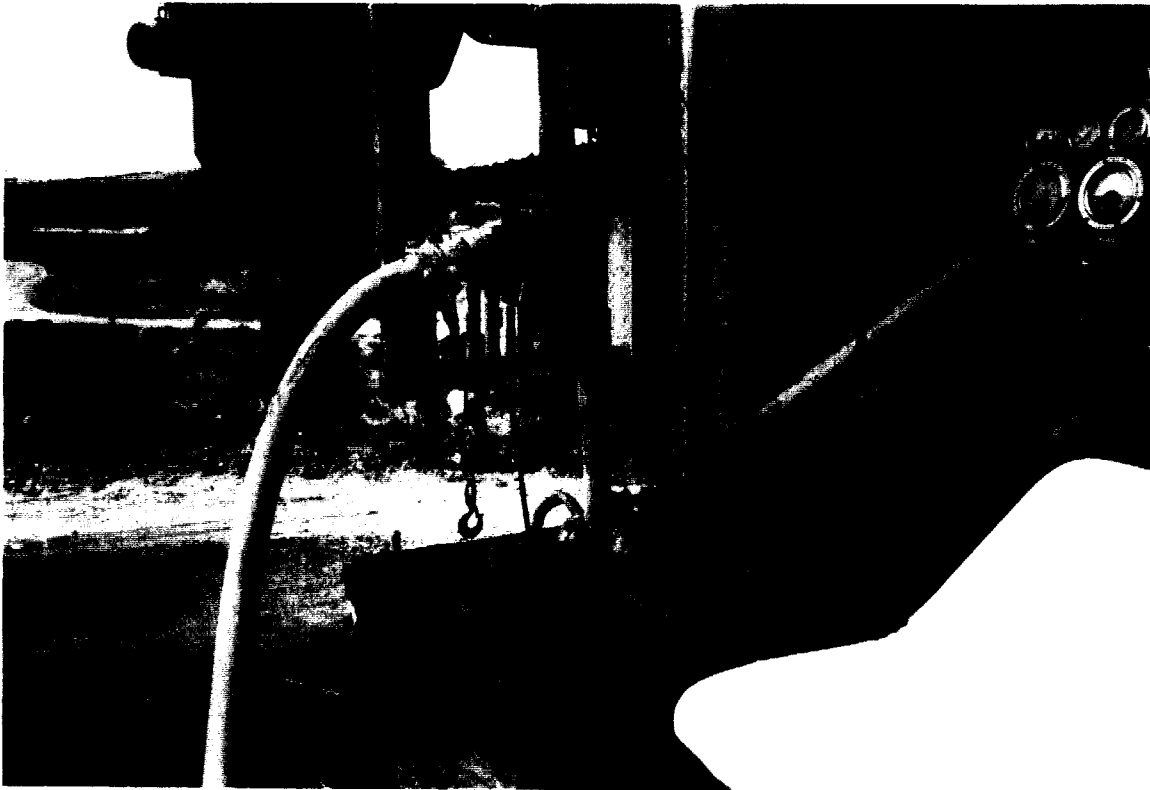
**Opening the 94 Millimeter Core Barrel**



**94 Millimeter Core Samples**



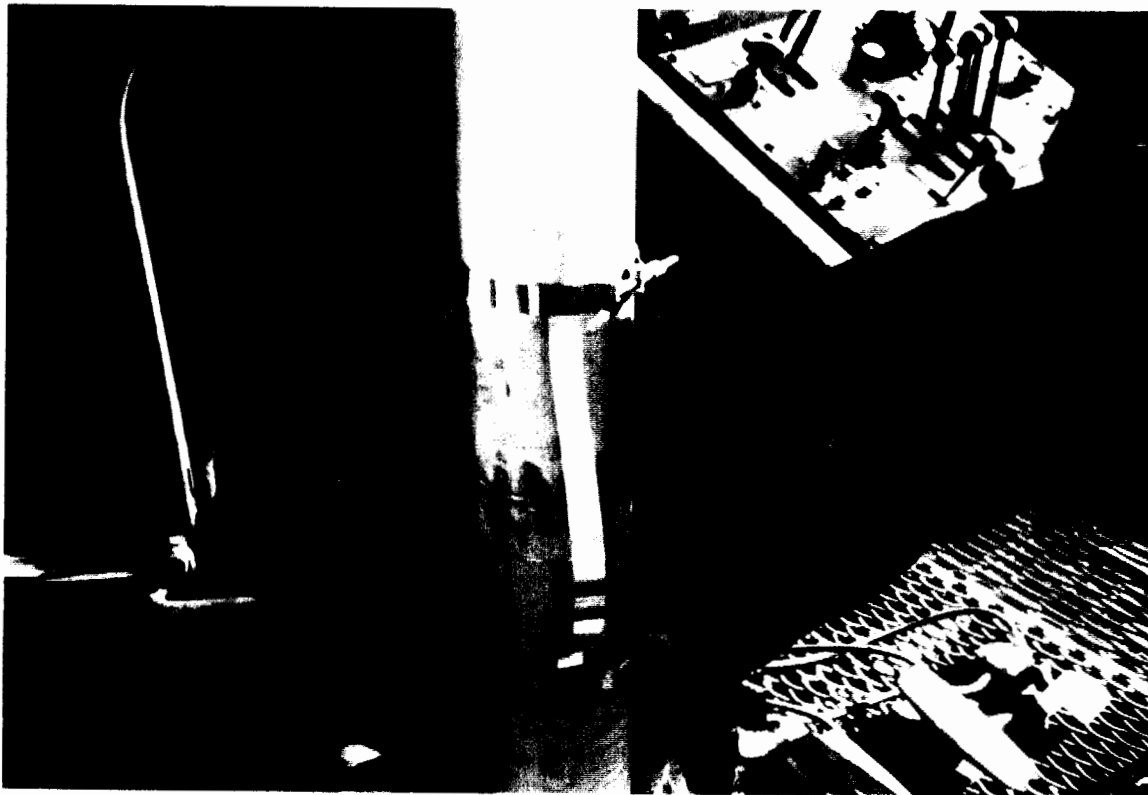
**Geophysical Logging Equipment**



**Clear Water Circulation Before Construction**



**Casing Installation**



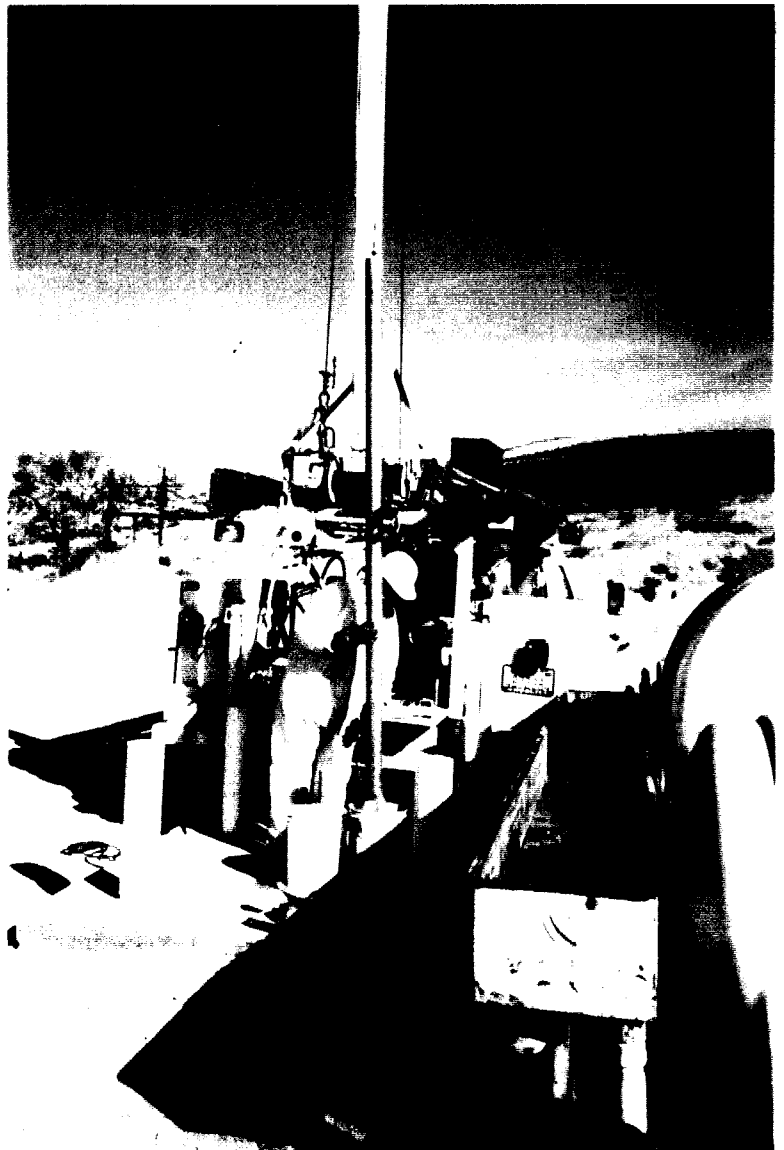
**Centralizer Every 40 Feet and Top and Bottom of Screen**



**Flush-Threaded with O-Ring Seal**



**Setting Gravel Pack With No. 3 Lonestar Sand**



**Well Development**



# FGL ENVIRONMENTAL

## ANALYTICAL CHEMISTS

Bermite Division of Whittaker  
22116 West Soledad Canyon Road  
Saugus, CA 91350

October 14, 1991  
Lab No.: 45864

Sampled By: Tim Bricker  
Container: VOA  
Preservative: Cool 4 C  
Sample Description: Baker Tank Carbon Filter

Sampled: September 30, 1991  
Received: September 30, 1991  
Extracted: N/A  
Analyzed: October 2, 1991

### REPORT OF ANALYSIS

<u>Analyte</u>	<u>EPA Method</u>	<u>Results ug/L</u>	<u>DLR</u>
Tetrachloroethene	624	ND	0.5
1,1-Dichloroethene	624	ND	0.5
Trichloroethene	624	ND	0.5

<u>Surrogate</u>	<u>%Recovery</u>
1,2-Dichloroethane-d4	89
Toluene-d8	94
BFB	80

ug/L = Micrograms Per Liter (ppb)

ND = Not Detected at or above the DLR

DLR = Detection Limit for Reporting Purposes

Very truly yours,  
FGL ENVIRONMENTAL

*Dudley Jayasinghe*  
Dudley Jayasinghe, Ph.D.  
Technical Director

DJ/DHN:mah

*Darrell H. Nelson*

Darrell H. Nelson, B.S.  
Laboratory Director



# FGL ENVIRONMENTAL

## ANALYTICAL CHEMISTS

QA/QC  
LABORATORY BLANK ANALYSIS  
EPA METHOD 624

### REPORT OF ANALYSES

Analyte	Results ug/L	DLR ug/L	Analyte	Results ug/L	DLR ug/L
Acetone	ND	5.0	1,2-Dichloropropane	ND	0.5
Benzene	ND	0.5	cis-1,3-Dichloropropene	ND	0.5
Bromodichloromethane	ND	0.5	trans-1,3-Dichloropropene	ND	0.5
Bromoform	ND	0.5	Ethanol	ND	10,000
Bromomethane	ND	0.5	Ethyl Benzene	ND	0.5
Carbon Tetrachloride	ND	0.5	Methylene Chloride	ND	0.5
Chlorobenzene	ND	0.5	Methyl Ethyl Ketone	ND	5.0
Chloroethane	ND	0.5	1,1,2,2-Tetrachloroethane	ND	0.5
Chloroform	ND	0.5	Tetrachloroethene	ND	0.5
Chloromethane	ND	0.5	Toluene	ND	0.5
Dibromochloromethane	ND	0.5	1,1,1-Trichloroethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5	1,1,2-Trichloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5	Trichloroethene	ND	0.5
1,4-Dichlorobenzene	ND	0.5	Trichlorofluoromethane	ND	0.5
1,1-Dichloroethane	ND	0.5	Vinyl Acetate	ND	10.0
1,2-Dichloroethane	ND	0.5	Vinyl Chloride	ND	0.5
1,1-Dichloroethene	ND	0.5	Xylenes	ND	0.5
trans-1,2-Dichloroethene	ND	0.5			

ug/L = Micrograms Per Liter (ppb).

ND = Not Detected at or above the DLR.

DLR = Detection Limit for Reporting Purposes.

#### Surrogate

1,2-dichloroethane-d4

Toluene-d8

BFB

#### Recovery

104%

94%

83%

Blank Prepared By: Charles Hudak

Analyst: Charles Hudak

File Name: VB100291

Analyzed: October 7, 1991

Results Checked By: Dudley S. Jayasinghe

**FGL ENVIRONMENTAL****ANALYTICAL CHEMISTS****QA/QC  
LABORATORY SPIKE RECOVERIES  
EPA METHOD 624**

<u>Analyte</u>	<u>% Recovery Spike #1</u>	<u>% Recovery Spike #2</u>	<u>% Difference</u>
Benzene	82	106	25.5
Chlorobenzene	92	109	16.9
1,1-Dichloroethene	89	87	2.3
Toluene	70	99	34.3
Trichloroethane	94	109	14.8

Date: October 2, 1991Analyst: Dudley S. Jayasinghe

Spike #1 Description: \_\_\_\_\_

File Name: \_\_\_\_\_

Spike #2 Description: \_\_\_\_\_

File Name: \_\_\_\_\_

**FIELD COORDINATOR**

PROJ. NO.	PROJECT NAME
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95	95
96	96
97	97
98	98
99	99
100	100

BERMITE / BAKER TRAIL WATER

**SAMPLERS / Signatures**

AS /Signature/

**STA. NO.**

DATE \_\_\_\_\_

COMP/CRIM

**STATION# LOCATION**

NUMBER  
OF  
CONTAINER

## REMARKS

1103

x

BAKER TANK CARBON FILTER

2

☒

EPA 624 PCF, DCE, TCE, OCE

Relinquished by: (Signature)

Time

Date \_\_\_\_\_

**Received by: (Signature)**

**Relinquished by: (Signature)****Quibus**

Time

**Received by: Signature**

**Flotinkulabed by: (Signature)**

**Time**

Date \_\_\_\_\_

Received by: {Signature}

**Refrigerated by: (Signature)**

Date:

## Time

**Received by: (Signature)**

Regulated by: (Signature)

Time

Date \_\_\_\_\_

Received for Laboratory by: \_\_\_\_\_  
(Signature)

**Prüfung** **Prüfung** **Prüfung**



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

Bermite Division of Whittaker  
22116 West Soledad Canyon Road  
Saugus, California 91350

January 31, 1992  
Lab No.: 200174-1

Sampled By: Tim Bricker  
Container: Metal Tube  
Preservative: Cool @ 4°  
Sample Description: Drilling Mud/MW-10

Sampled: January 15, 1992  
Received: January 15, 1992  
Extracted: N/A  
Analyzed: January 23, 1992

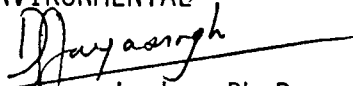
### VOLATILE ORGANICS IN SOIL (GC/MS) EPA METHOD 8240 REPORT OF ANALYSIS

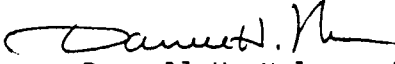
Analyte	Results ug/kg	DLR ug/kg	Analyte	Results ug/kg	DLR ug/kg
Acetone	ND	50	trans-1,2-Dichloroethene	ND	5.0
Acrolein	--	---	1,2-Dichloropropane	ND	0.5
Acrylonitrile	--	---	cis-1,3-Dichloropropene	ND	0.5
Benzene	ND	5.0	trans-1,3-Dichloropropene	ND	5.0
Bromodichloromethane	ND	5.0	Ethanol	ND	10,000
Bromoform	ND	5.0	Ethyl Benzene	ND	5.0
Bromomethane	ND	10.0	2-Hexanone	ND	5.0
Carbon Disulfide	ND	5.0	Methylene Chloride	ND	5.0
Carbon Tetrachloride	ND	5.0	2-Butanone (MEK)	ND	10.0
Chlorobenzene	ND	5.5	4-Methyl-2-pentanone (MIBK)	ND	5.0
Chloroethane	ND	10.0	1,1,2,2-Tetrachloroethane	ND	5.0
Chloroform	ND	5.0	Tetrachloroethene	ND	5.0
Chloromethane	ND	5.0	Toluene	ND	5.0
Dibromochloromethane	ND	5.0	1,1,1-Trichloroethane	ND	5.0
1,2-Dichlorobenzene	ND	5.0	1,1,2-Trichloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0	Trichloroethene	ND	5.0
1,4-Dichlorobenzene	ND	5.0	Trichlorofluoromethane	ND	5.0
1,1-Dichloroethane	ND	5.0	Vinyl Acetate	ND	10.0
1,2-Dichloroethane	ND	5.0	Vinyl Chloride	ND	10.0
1,1-Dichloroethene	ND	5.0	Xylenes	ND	5.0

Surrogate	% Recovery
1,2-Dichloroethane-d4	86
Toluene-d8	96
BFB	96

ug/kg = Micrograms Per Kilograms (ppb)  
ND = Not Detected at or above the DLR  
DLR = Detection Limit for Reporting Purposes

Very truly yours,  
FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
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Darrell H. Nelson, B.S.  
Laboratory Director

DJ/DN:mlh



# GAMMA RAY-CALIPER LOG

FILING NO. COMPANY BERMITE POWDER CO.  
WELL MW-10  
FIELD SAUGUS  
COUNTY LOS ANGELES STATE CALIFORNIA

LOCATION: BERMITE POWDER CO.

OTHER SERV:  
E-LOG

SEC TWP RGE

PERMANENT DATUM: G.L. ELEV: N/A

LOG MEASURED FROM G.L. 0 FT ABOVE PERM DATUM  
DRILLING MEASURED FROM G.L.

ELEVATION:  
KB.  
DF.  
GL.

DATE	01-17-1992	01-17-1992
TYPE OF LOG	GAMMA RAY	CALIPER
RUN NO.	ONE	ONE
DEPTH - DRILLER	701'	701'
DEPTH - LOGGER	698'	698'
BOTTOM LOGGED INT	697'	697'
TOP LOGGED INT	0'	0'
TYPE FLUID IN HOLE	BENTONITE	BENTONITE
DENSITY	N/A	N/A
LEVEL	FULL	FULL
MAX TEMP DEG F	N/A	N/A
OPERATING RIG TIME	.5 HR	.5 HR
OPERATOR	M. SHARPLESS	M. SHARPLESS
WITNESSED BY	H.E. HANSEN	H.E. HANSEN

RUN NO.	BORE HOLE RECORD			CASING RECORD			
	BIT	FROM	TO	SIZE	WGT.	FROM	TO
01	11"	15"	T.D.	14"	N/A	0'	15'

## EQUIPMENT DATA

### LOGGING DATA

Run No.	ONE	ONE	Run No.	ONE	ONE
Tr 1 Model No.	CAL-202	GNC27U5A	Log Type	CALIPER	GAMMA RAY
Diameter	1.25"	1 11/16"	Speed Ft./Min.	30	30
Detector Model No.	---	---	T.C. Sec.	1	1
Type	3 ARM	GM	Sens. Settings	500/500	100/250
Length	---	18"	Zero Div. L or R	0-L	8-L
			API Units/Div.	1"/DIV	10
			Log Start Time	1600	---
			Log End Time		1900
Tr 2 Truck No.	L-10		Pumping Rate		
Instrument. Truck No.	L-10		Fluid Level	FULL	FULL
Tool Serial No.			Formation Factor	N/A	N/A

General

Tr 1 Truck No.

Instrument. Truck No.

Tool Serial No.

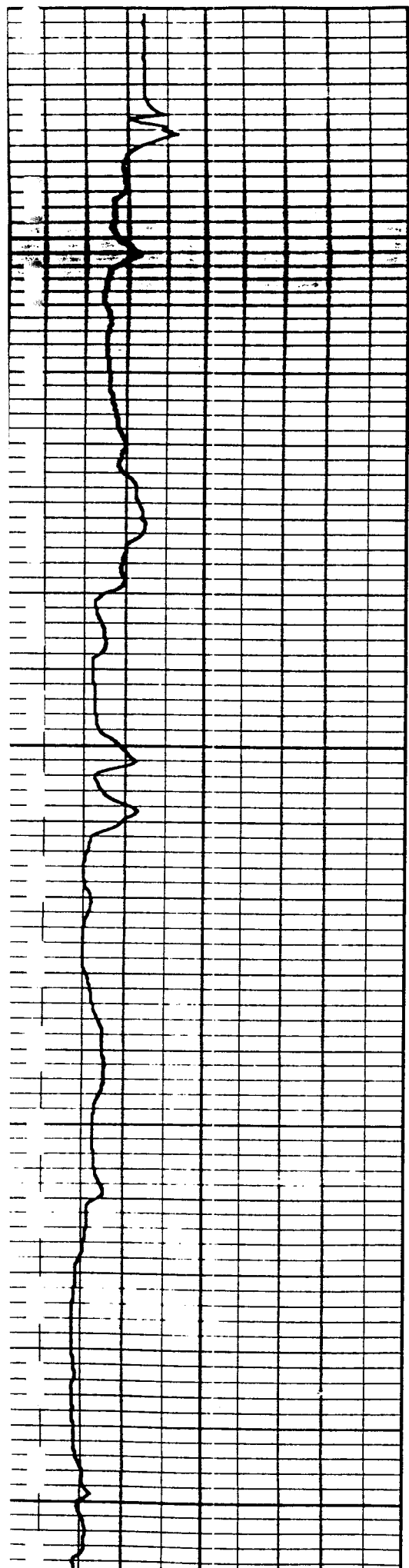
Remarks:

Fold Here

CALIPER  
Inches

DEPTHS

GAMMA RAY LOG  
API Units

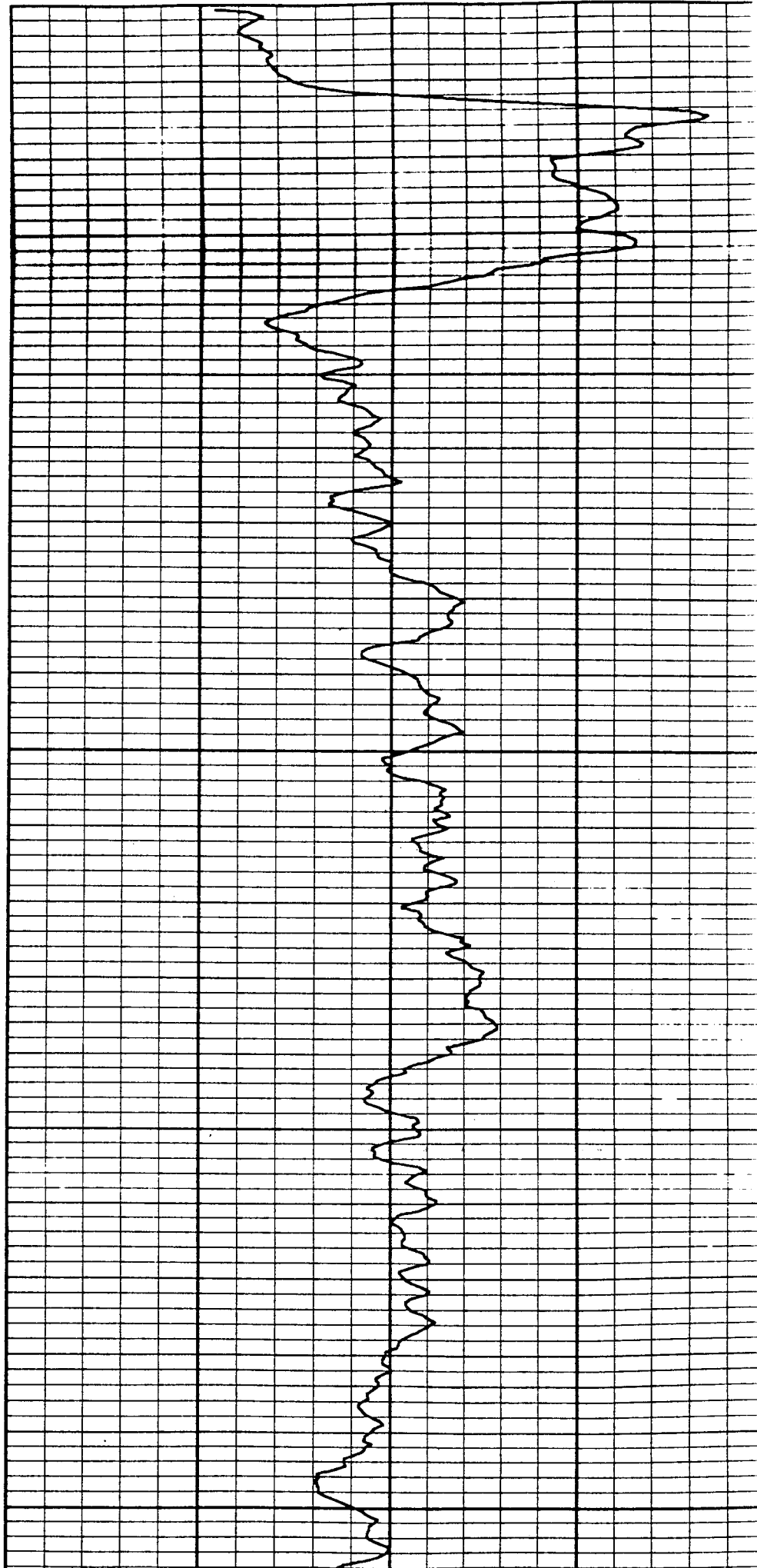


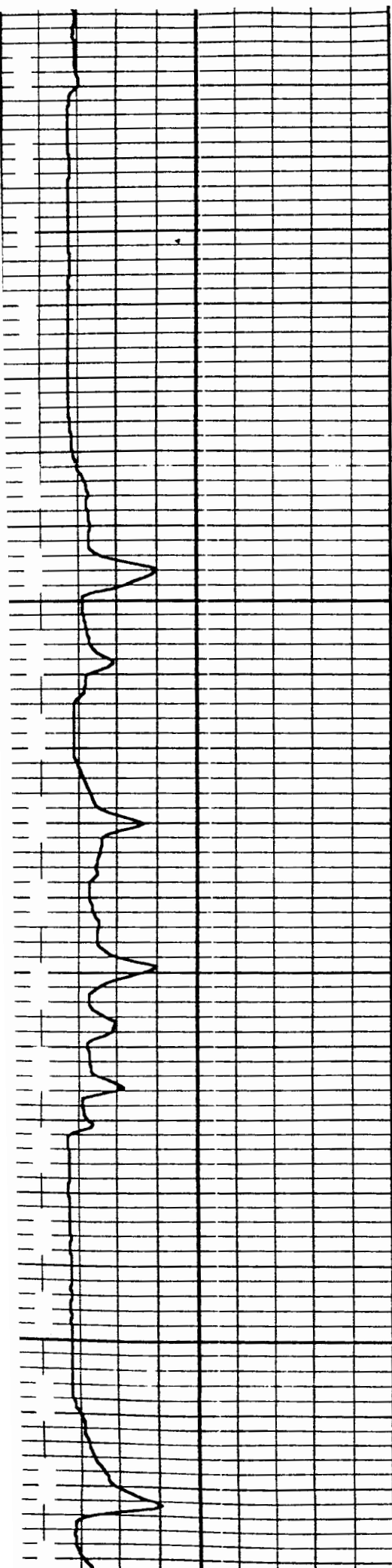
00050

00100

00150

00200



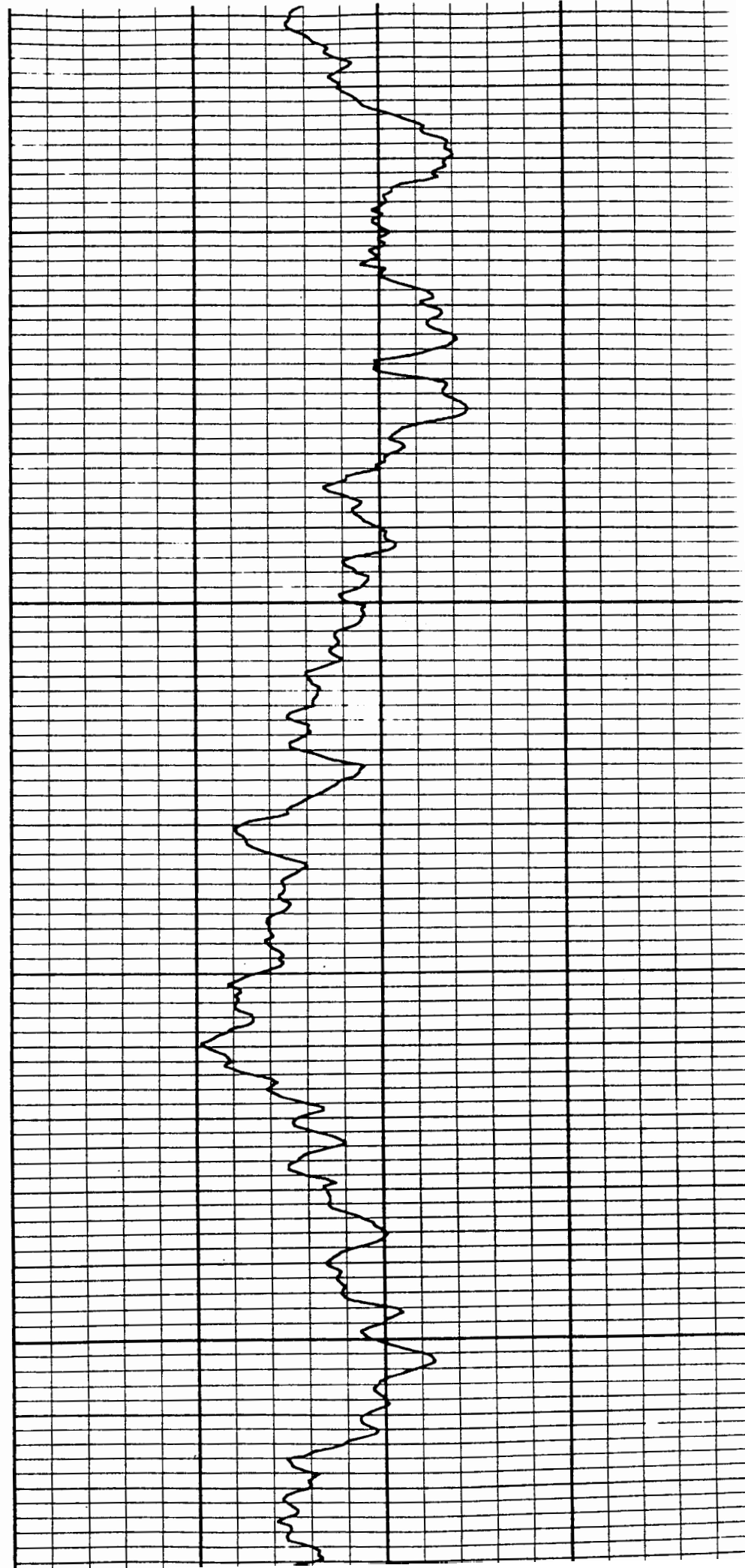


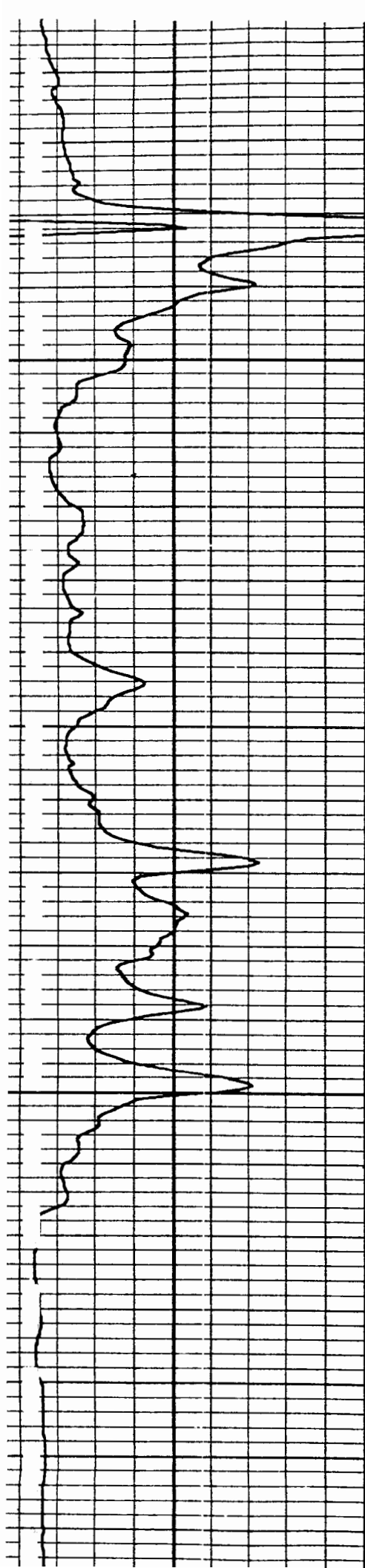
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00300

00350

00400



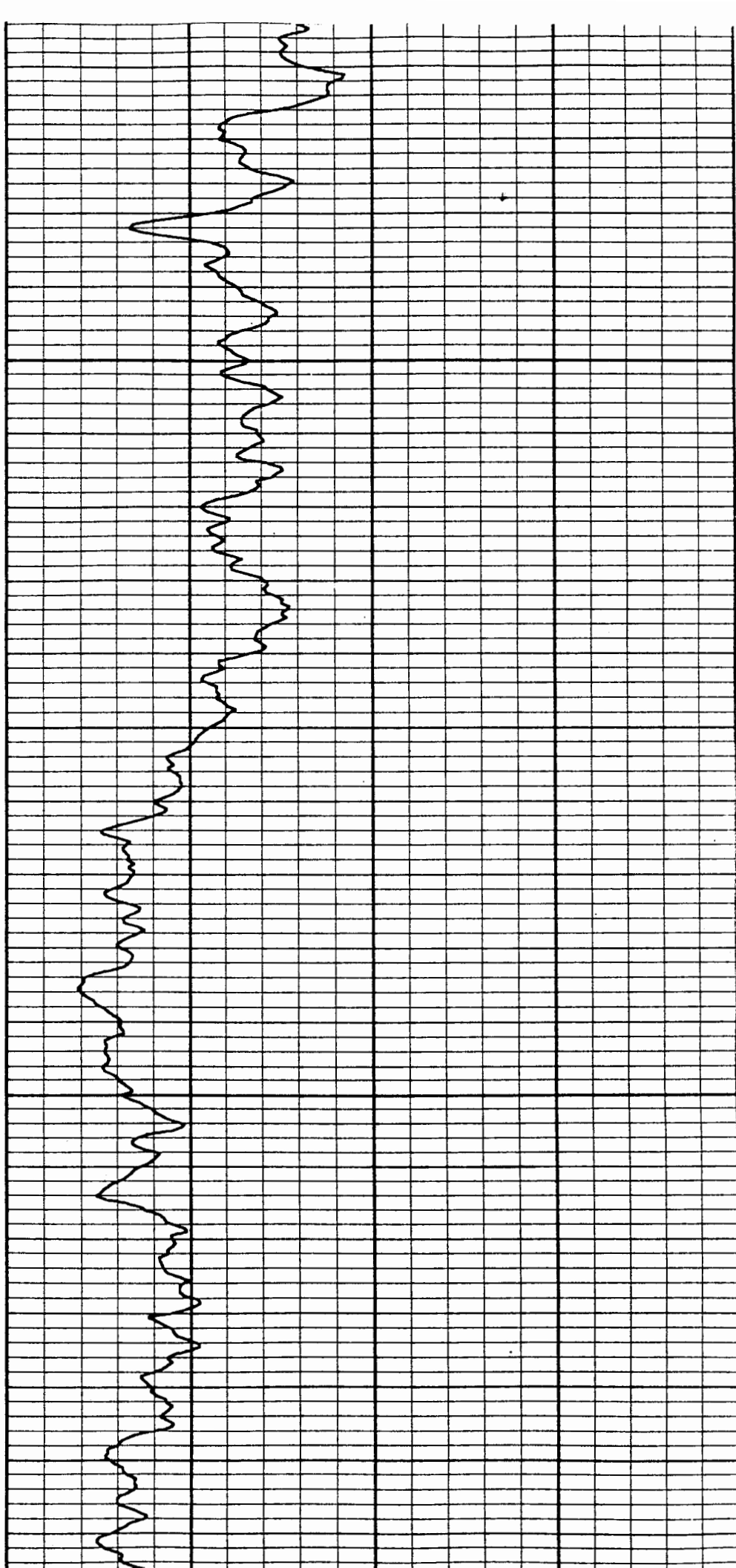


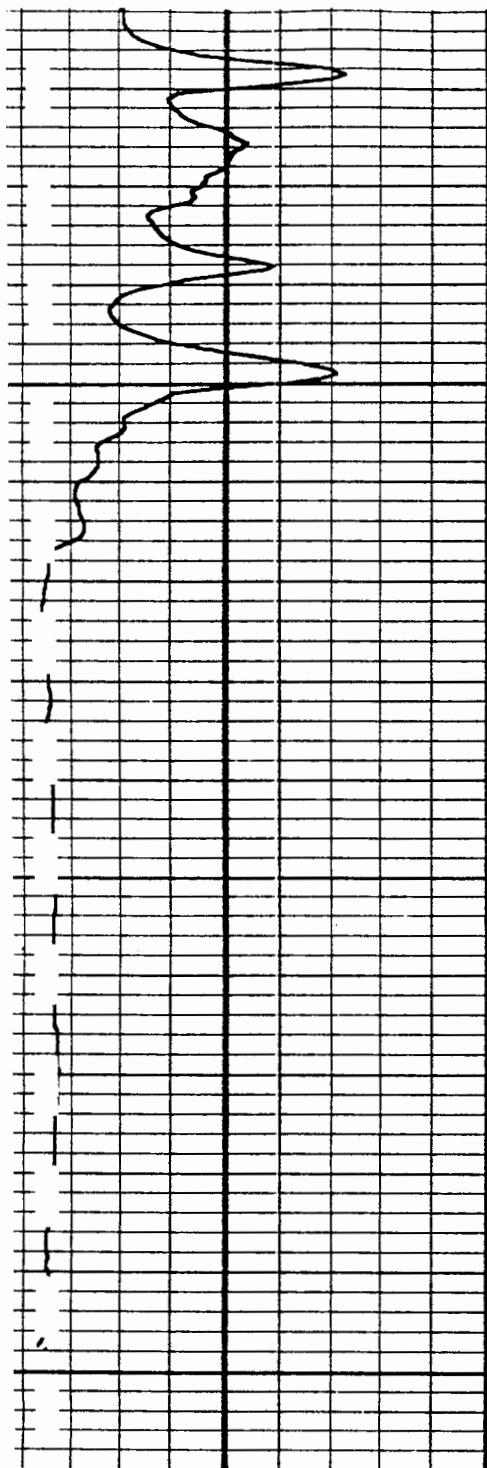
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00550

00600

00650

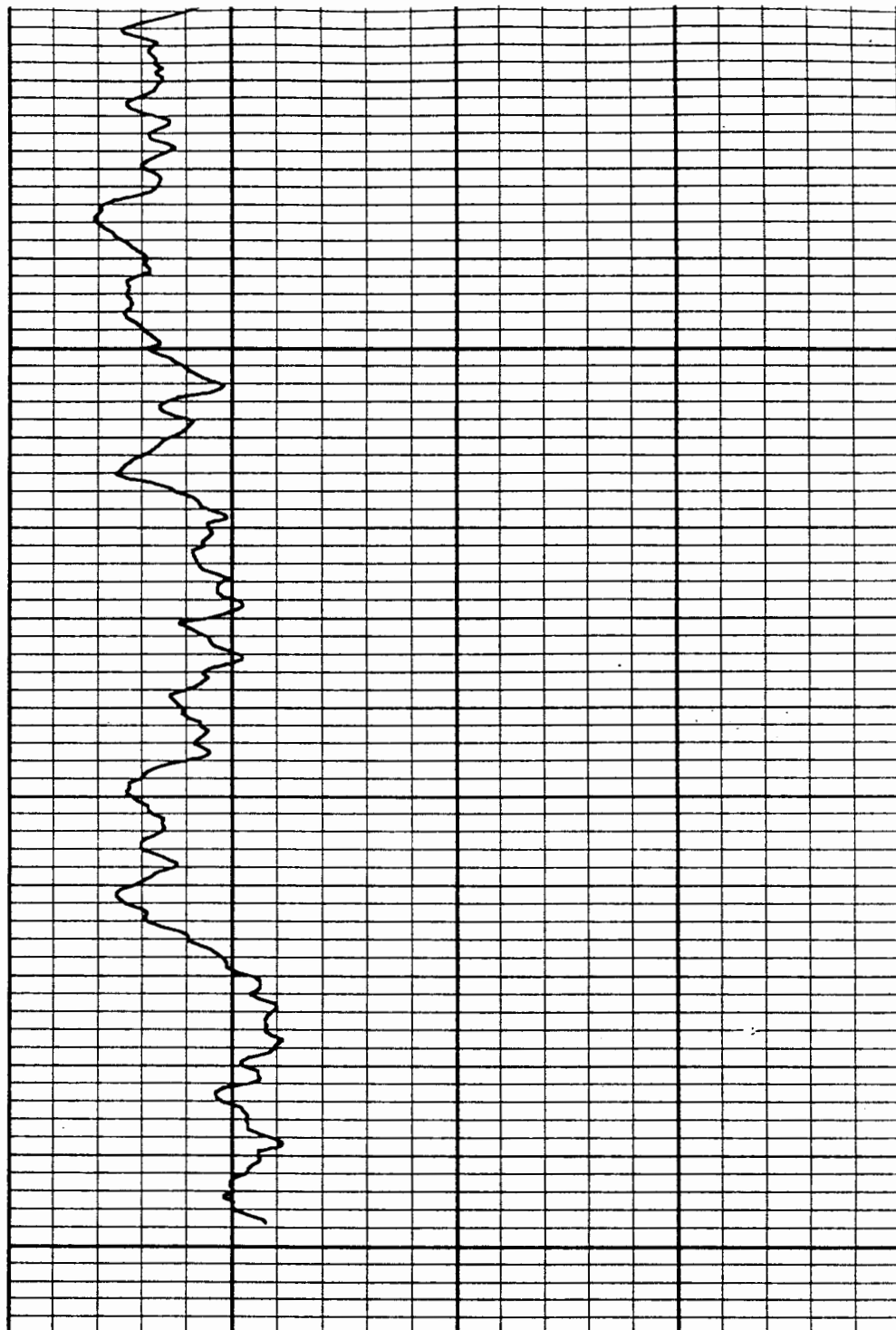




00600

00650

00700



Inches CALIPER	20	80	API Units GAMMA RAY LOG	280
	DEPTHS			



# ELECTRIC LOG

FILING NO.	COMPANY BERMITE POWDER CO.		
	WELL MW-10		
	FIELD SAUGUS		
	STATE CALIFORNIA	COUNTY LOS ANGELES	
LOCATION: BERMITE POWDER CO.			OTHER SERV: GR-CAL
SEC	TWP	RGE	
Permanent Datum: G.L. Elev: N/A			K.B.
Log Measured From G.L. 0 Ft Above Perm Datum			D.F.
Drilling Measured From G.L.			G.L.
Date	01-17-1992	- -	- -
Run No.	ONE	TWO	THREE
Depth - Driller	701'		
Depth - Logger	698'		
Btm. Log Inter.	697'		
Top Log Inter.	40'		
Casing-Driller	14" at 15'	at	at
Casing-Logger	14" at 15'	at	at
Bit Size	11"		
Type Fluid In Hole	BENTONITE		
Dens.	Visc.	N/A	
pH	Fluid Loss	N/A ml	ml
Source of Sample	CIRC.		
Rm at Meas. Temp	6.1 at 75 F	at 75 F	at 75 F
Rmf at Meas. Temp	9.3 at 75 F	at 75 F	at 75 F
Rmc at Meas. Temp	N/A at F	N/A at F	N/A at F
Source: Rmf Rmc	MEAS	MEAS	MEAS
Rm at BHT	N/A at F	N/A at F	N/A at F
Time Since Circ.	0 HR.		
Max. Rec. Temp.	N/A F	F	F
Equip	Location	L-10 BFLD	BFLD BFLD
R	rde	y	SHF ES

This Heading and Log Conform To API RP 31

F d Here

REMARKS

Changes in Mud Type or Additional Samples				Scale Changes			
Date	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole	Tool Type	Tool Pos
Drill-Driller						ELECTRIC	FREE
Fluid in Hole							
Dens.	Visc.						
h	Fluid Loss						
Source of Sample							
Rm at Meas. Temp.	at	F	at	F	at	F	at
Rmf at Meas. Temp.	at	F	at	F	at	F	at
Rmc at Meas. Temp.	at	F	at	F	at	F	at
Source: Rmf Rmc							
Rm at BHT	at	F	at	F	at	F	at
Rmf at BHT	at	F	at	F	at	F	at
Rmc at BHT	at	F	at	F	at	F	at

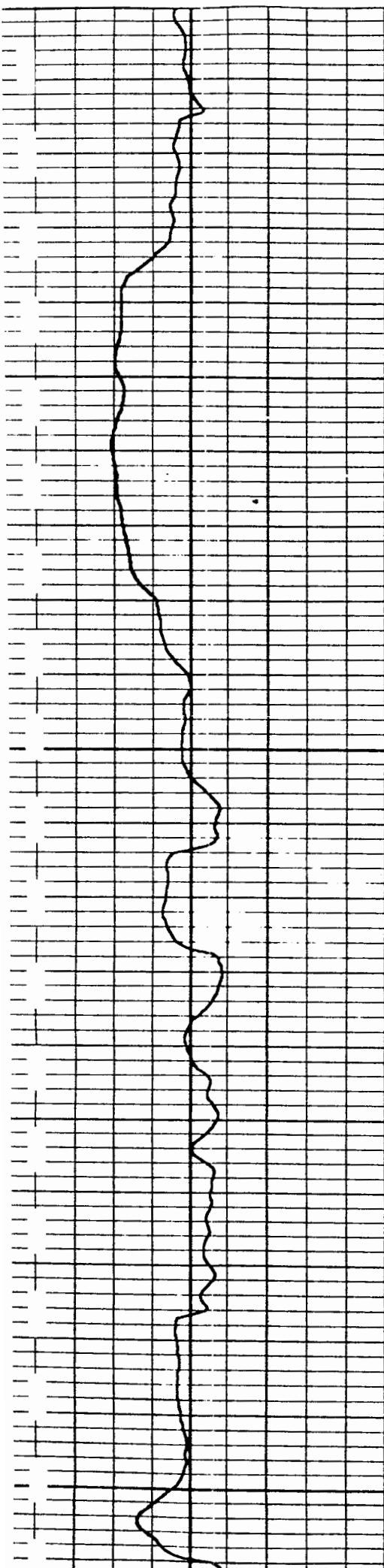
SPONTANEOUS POTENTIAL  
millivolts

DEPTHS

RESISTIVITY  
ohmmeters2 /meter

RESISTANCE  
ohms





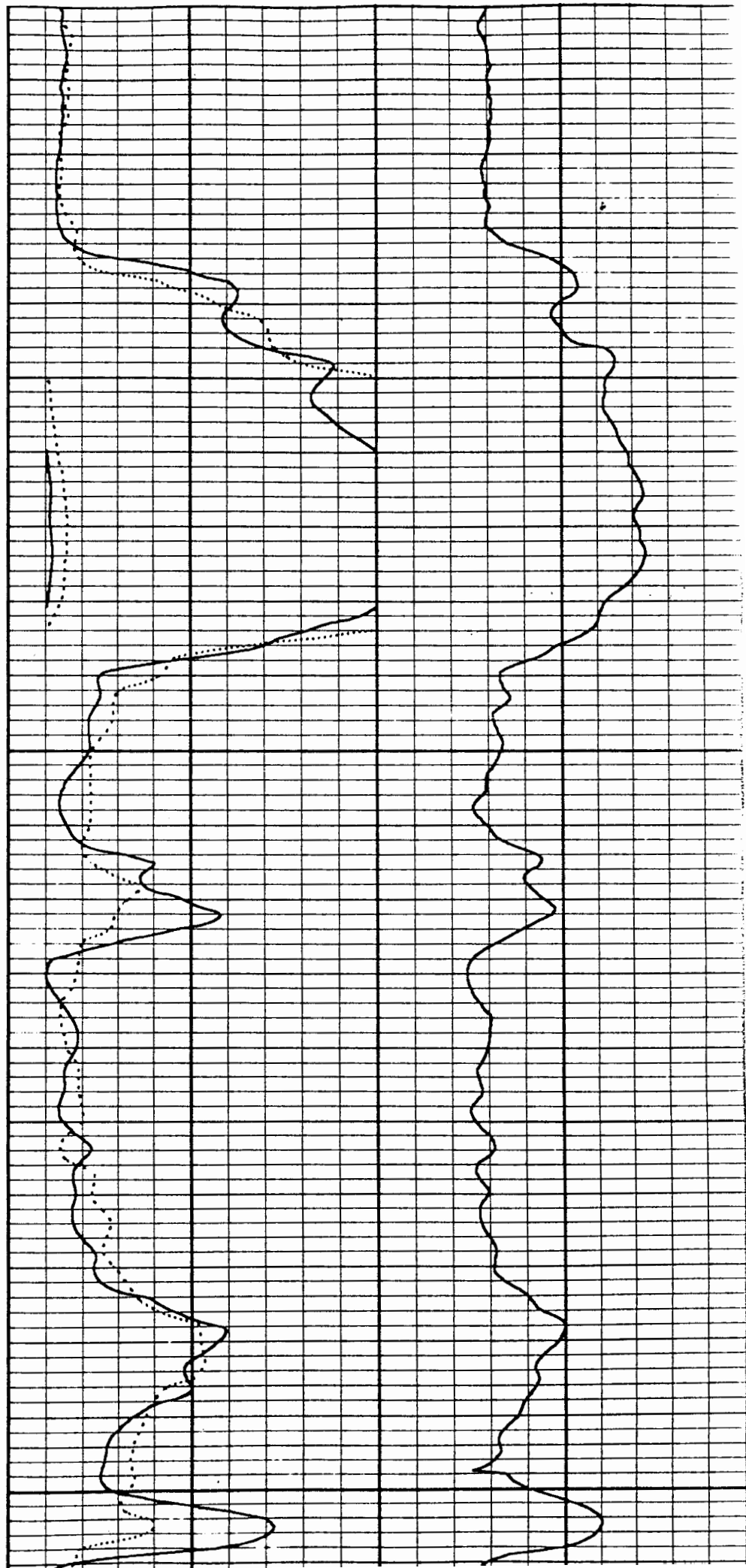
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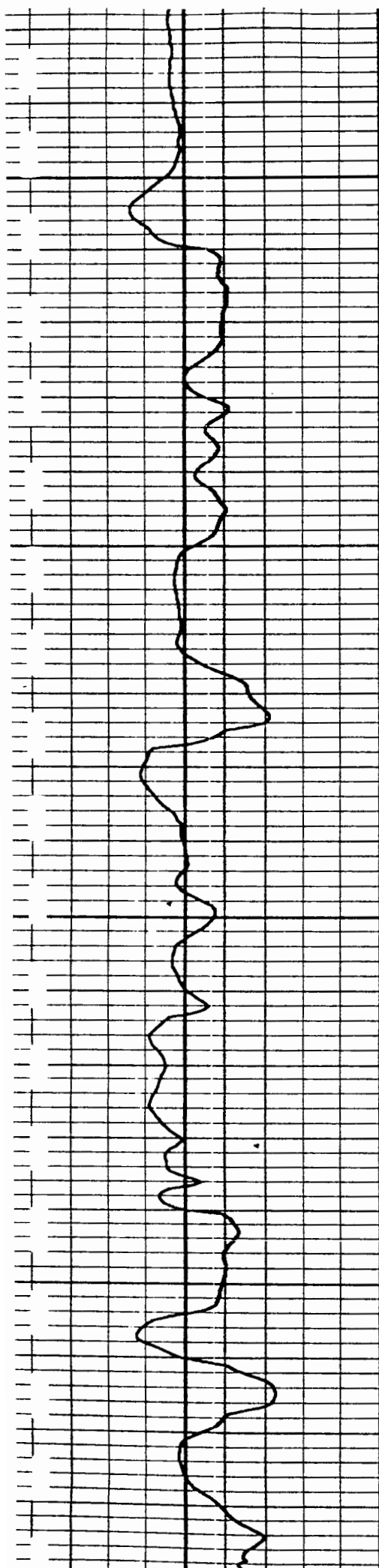
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00300

00350

00400



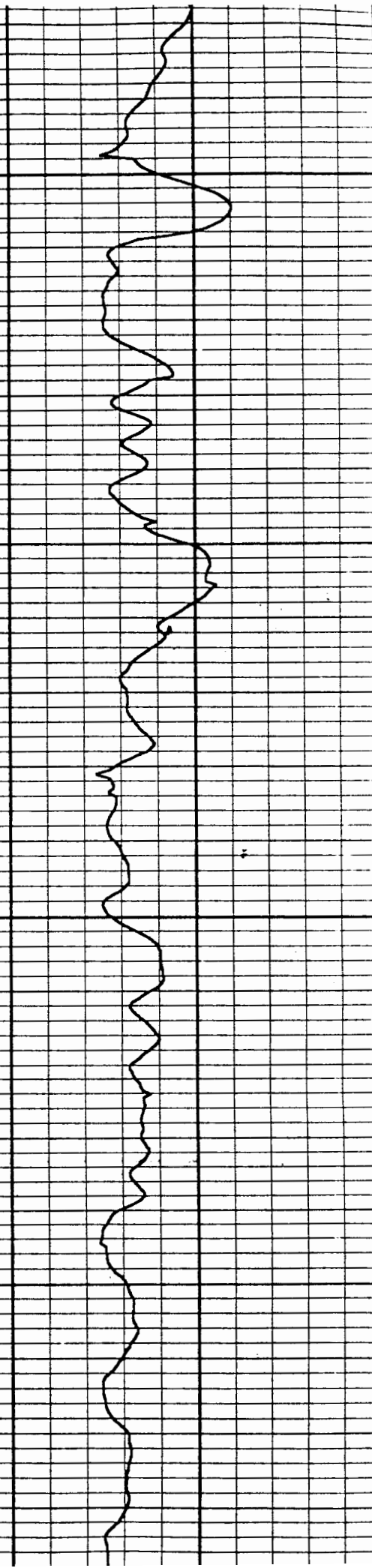
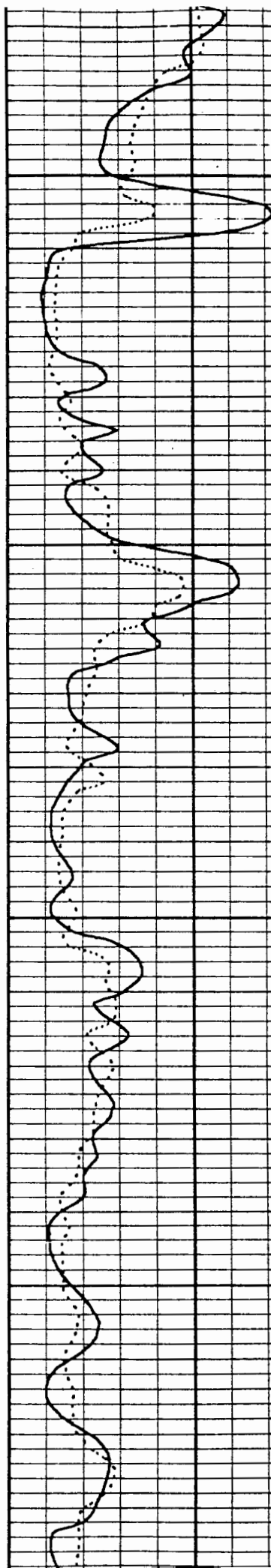


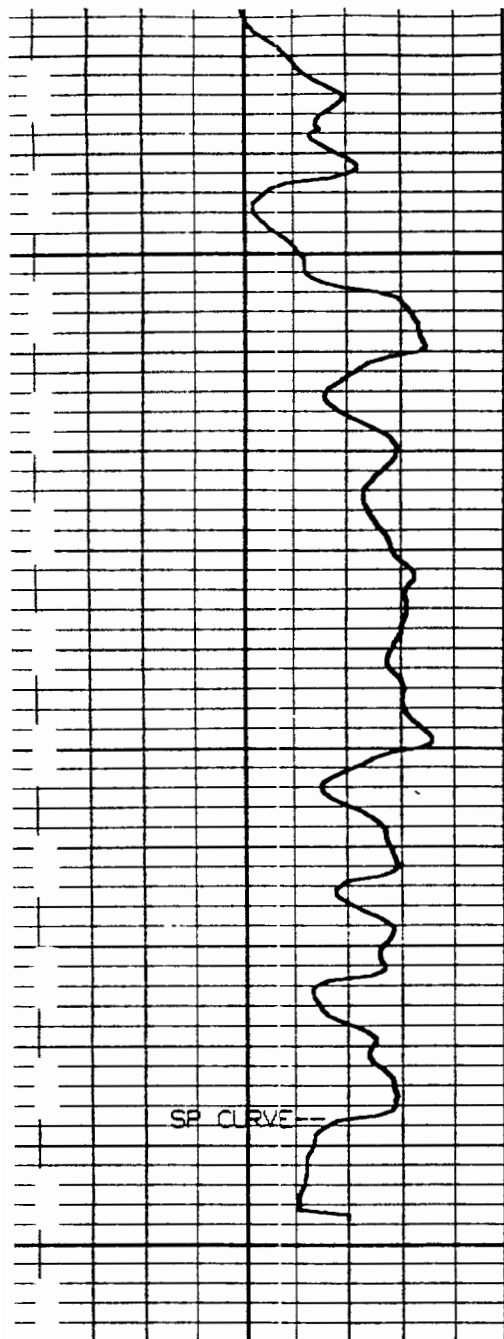
00400

00450

00500

00550

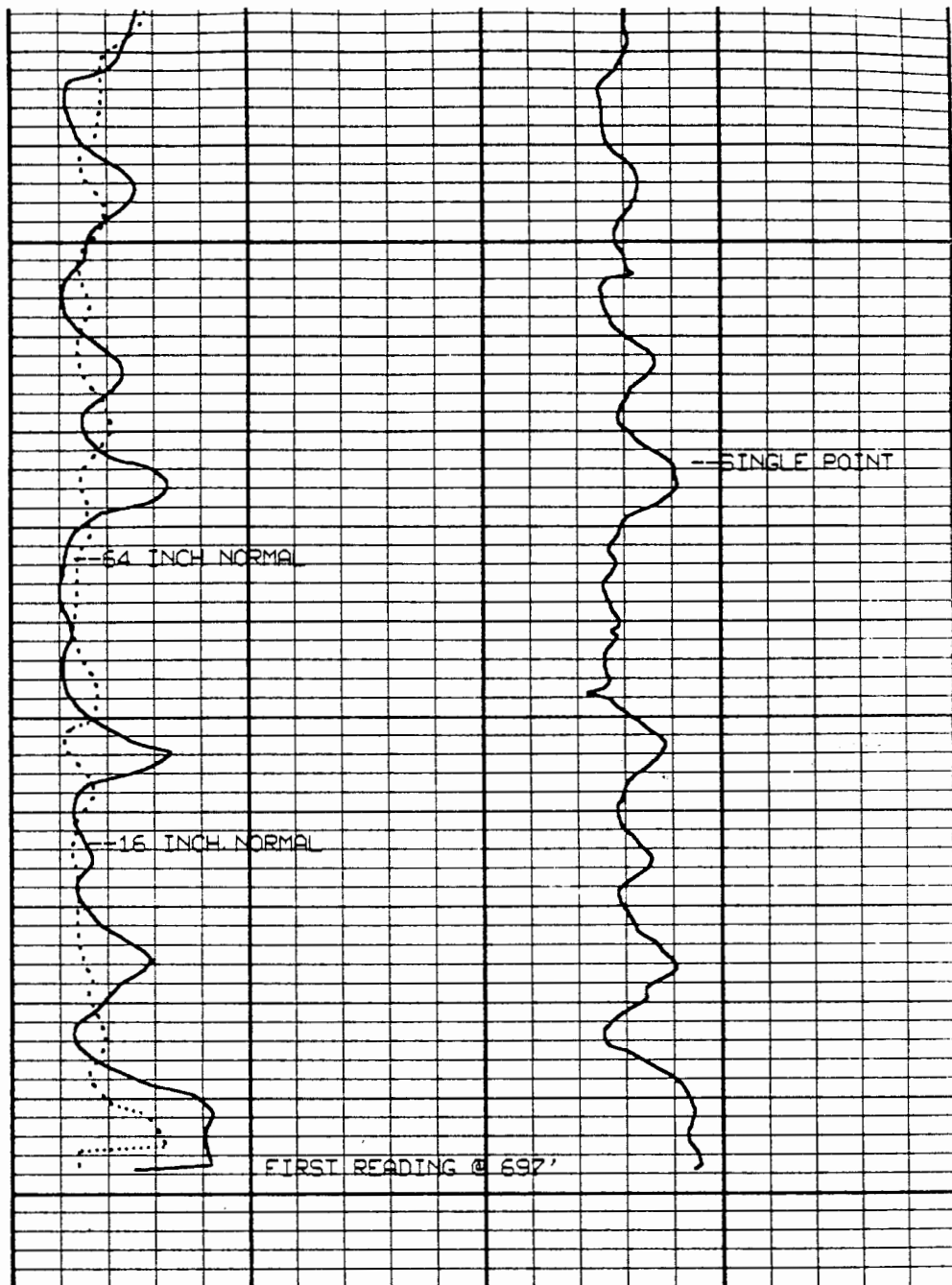




00600

00650

00700



5  
- | +

0	X10 BACKUP	1000
0	64 Inch LONG NORMAL	100
0	X10 BACKUP	1000
0	16 Inch SHORT NORMAL	100

Detail Curve  
SINGLE POINT

millivolts  
SPONTANEOUS POTENTIAL

DEPTHS

ohmmeters2/meter  
RESISTIVITY

ohms  
RESISTANCE

TELEPHONE  
213-263-4111

FACSIMILE  
213-263-4487

## ROSCOE MOSS MANUFACTURING COMPANY

4360 WORTH STREET  
P.O. Box 31064 LINCOLN HEIGHTS STATION  
LOS ANGELES, CALIFORNIA 90031

17 January 1992

Mr. Glen Abdun-Nur  
Bermite Corp.  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Dear Glen:

Enclosed is a copy of the sieve analysis for the formation sample from your monitor well number MW10 pilot boring.

As we discussed when designing your previous wells, stainless steel screen with a .020" slot size and a #3 filter pack should meet your needs.

Not unlike the other wells this recommendation may be considered conservative. However, like the last three wells, since the intended purpose is strictly monitoring there may be some fine sand lenses in the zone to be screened that were not analyzed. This combination of materials allows you to accomplish your sampling objectives while at the same time providing an added margin of safety against unforeseen conditions.

Please call me if you have any questions or comments.

Sincerely,

ROSCOE MOSS MANUFACTURING CO.

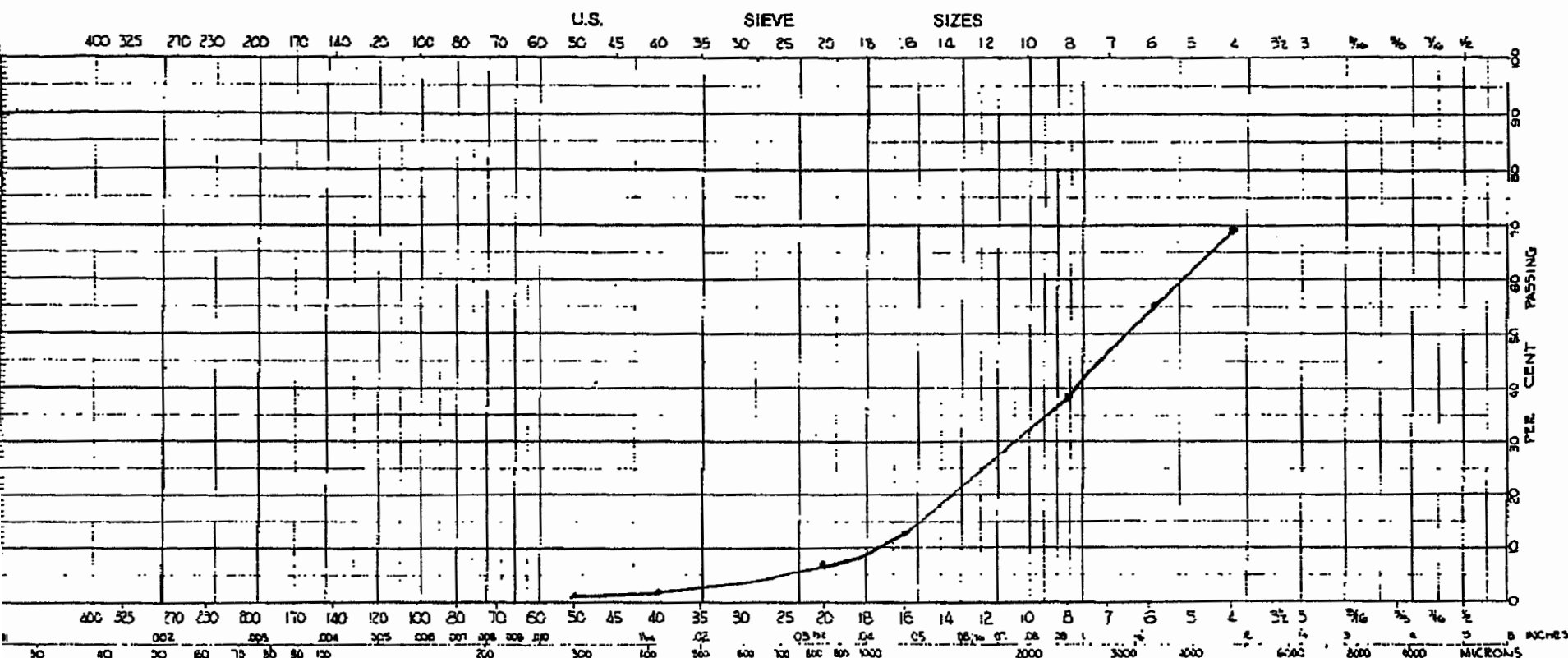
Richard R. King

RRK:ne

Enc.



# WATER WELL GRAVEL PACK AND FORMATION MECHANICAL GRADING ANALYSIS



Formation Analysis		Gravel Pack Analysis	
Screen Size	% Passing	Screen Size	% Passing
4	69		
6	55		
8	38		
16	13		
30	7		
40	2		
50	1		
70	—		
80	—		
100	—		

Customer PERMITE

Well Name & Number MW# 10

Well Location \_\_\_\_\_

Gravel Name or Number \_\_\_\_\_

Vendor \_\_\_\_\_

Driller \_\_\_\_\_

Date 1/17/92



**Roscoe Moss Company**

4360 Worth Street  
Los Angeles, California  
90063

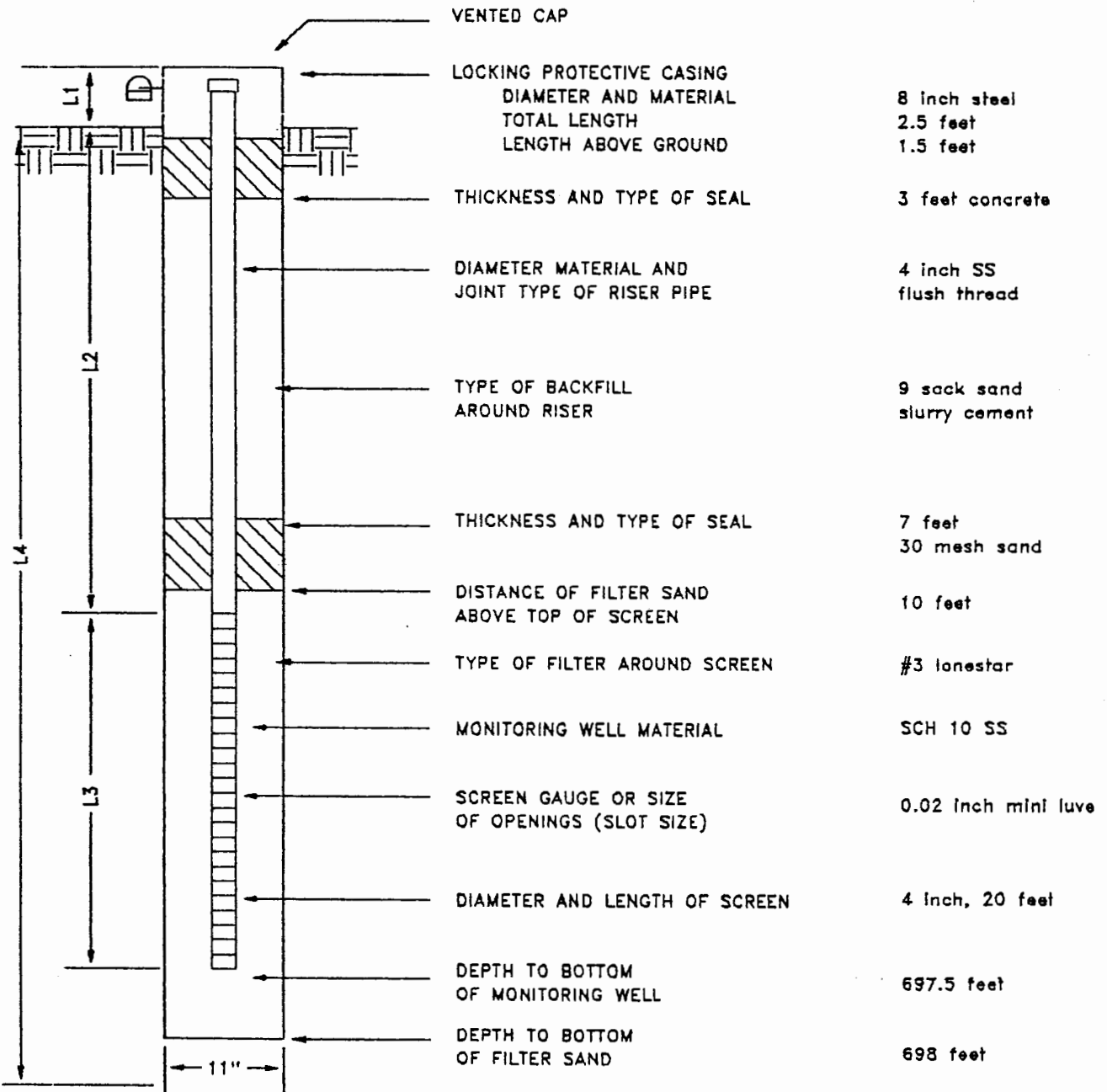
213-263-4111

P.O. Box 31064  
Los Angeles, California  
90031

# MONITORING WELL CONSTRUCTION DETAIL

PROJECT: AREA 317  
WHITTAKER CORPORATION  
BERMITE DIVISION  
22116 WEST SOLEDAD CANYON RD  
SANTA CLARITA, CALIFORNIA

MONITORING WELL NO. MW-10  
ELEVATIONS: TOP OF RISER 1537.49  
GROUND LEVEL



L1 = 1.5 FT  
L2 = 677.5 FT  
L3 = 20 FT  
L4 = 697.5 FT

## MONITORING WELL WATER LEVEL MEASUREMENTS

DATE	TIME	WATER LEVEL*
01-29-92	10:00	486.92

\*Measuring Point: top of casing  
(pump mount)

INSTALLATION COMPLETED  
01-20-92 5:00

FIGURE B-1

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WH101.15

Location:

Whitaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth  
(feet)

Sample Int.

Logged by: Hal E. Hansen

Checked by: *[Signature]*

Description

Graphic  
Log

BORING/  
WELL  
DETAIL

Comments

Field OVM/OVA  
Reading (ppm)

0

GRAVELLY SAND/SANDY GRAVEL, olive,  
coarse-grained sand, common non-  
plastic fine-grained matrix  
(GW/SW)

5

10

15

20

25

30

35

40

45

50

GW/  
SW

Reverse air rotary method

0

0

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WHI01.15

Location:

Whitaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>DVA</i>				
		Description				
50		continued from above				
		GRAVELLY SAND/SANDY GRAVEL, olive, oarse-grained sand, common non-plastic fines. (GW/SW)				
55						
60		Large boulder				
65						
70						
75						
80						
85						
90						
95						
100						

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WH01.15

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Santa Clarita, California

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Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91







Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>Dvd</i>				
		Description				
100		continued from above				
105		GRAVELLY SAND/SANDY GRAVEL, olive, coarse-grained sand, minor plastic fines (GW/SW)				
110						
115						
120						1
125		SILTY SAND, brown, fine-grained sand, common plastic fines (SM)				
130						
135						
140		CLAYEY SAND, light brown, fine to coarse-grained sand (SC)				0
145						
150						

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.  
WH01.15

Location:  
Whittaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91












Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>DEP</i>				
		Description				
150		continued from above CLAYEY SAND, light brown, fine to coarse-grained sand (SC)				
155		SANDY CLAY, reddish brown, plastic silty fines (CL)				
160						4
165						
170						
175						
180						0
185						
190		SANDY GRAVEL, olive, coarse-grained sand; common non plastic fines (GW)				
195						
200		SANDY CLAY, olive-brown, plastic silty fines (CL)				0

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WH101.15

Location:

Whittaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>DA</i>				
		Description				
200		continued from above SANDY CLAY, olive-brown, plastic silty fines (CL)				0
205						
210						
215			CL			
220						0
225						
230						
235		GRAVELLY SAND/SANDY GRAVEL, olive, coarse-grained sand, common non - plastic fines, 1/4 in. diameter gravels (GW/SW)				0
240						
245			GW/ SW			
250						

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WH101.15

Location:

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Driller: Tom Moreland

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OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>DD</i>				
		Description				
250		continued from above GRAVELLY SAND/SANDY GRAVEL, olive, coarse-grained sand, common non plastic fines (GW/SW)				0
255						
260						
265						
270						
275						0
280						
285						
290						
295		SANDY CLAY, reddish brown, moderately plastic, fine-grained sand (CL)				
300						0

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WH101.15

Location:

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22116 West Soledad Canyon Road  
Santa Clarita, California

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Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

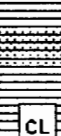


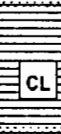
Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: DD				
		Description				
300		continued from above SANDY CLAY, reddish brown, moderately plastic, fine-grained sand (CL)				0
305						
310		GRAVELLY SAND, olive, coarse-grained, common non plastic fines (SP)				
315						
320						0
325						
330		SANDY CLAY, light brown, plastic, coarse-grained sand (CL)				
335						
340						0
345						
350						

# Acton • Mickelson • van Dam, Inc. Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

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WH101.15

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OVM/OVA Foxboro Flame Ionization Detector

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08:30 am

12-17-91























Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>DV</i>				
		Description				
350		continued from above SANDY CLAY, light brown, plastic, fine-grained sand (CL)				
355						0
360						
365						
370						
375		GRAVELLY SAND, olive brown, fine to coarse-grained sand, common non plastic fines (SW)				0
380						
385						
390		SANDY CLAY, light brown, plastic, coarse-grained sand (CL)				
395						
400						0

**Acton • Mickelson • van Dam, Inc.**  
Consulting Scientists, Engineers, and Geologists

**Log of Soil Boring MW-10**

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WH01.15

Location:

Whitaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91







Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>DH</i>				
		Description				
400		continued from above SANDY CLAY, light brown, plastic, coarse-grained sand (CL)				0
405		GRAVELLY SAND, olive, coarse- grained sand, common non- plastic fines (SP)				
410						
415						
420		SANDY CLAY, light brown, plastic silty fines (CL)				0
425						
430						
435						
440		SANDY GRAVEL, olive, fine to coarse- grained sand, common non-plastic fines (GW)				0
445						
450		SANDY CLAY, light brown, plastic, fine-grained sand (CL)				
		GRAVELLY SAND, olive, coarse-grained (SW)				

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

Log of Soil Boring **MW-10**

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WHI01.15

Location:

Whittaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moraland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: DR				
	Description					
450		continued from above GRAVELLY SAND, olive, coarse-grained (SW)				0
455						
460						
465						0
470		CLAYEY SAND, brown, fine-grained, slightly plastic fines (SC)				
475						
480						0
485		color change to olive				
490		SANDY CLAY, light olive brown, slightly plastic, fine-grained sand (CL)				
495						0
500						

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WHI01.15

Location:

Whittaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>DH</i>				
		Description				
500		continued from above				0
		SANDY CLAY, light olive brown, slightly plastic, fine-grained sand (CL)	CL			
505		SAND, olive, fine-grained, minor silt, some black sand (SP)	SP			
510		SILTY SAND, grayish olive, fine-grained, common plastic fines (SM)	SM			
515						
520		SANDY CLAY, light brown, slightly plastic, fine-grained sand (CL)	CL			0
525						
530		CLAYEY SAND, olive brown, fine to coarse-grained, common plastic fines (SC)	SC			
535		light brown				
540		SANDY CLAY, brown, slightly plastic, fine-grained sand (CL)	CL			0
545						
550						

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WHI01.15

Location:

Whittaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>DJD</i>				
		Description				
550		continued from above				
		SANDY CLAY, brown, slightly plastic, fine-grained sand (CL)	CL			
555						
		CLAYEY SAND, brown, fine-grained minor plastic fines (SC)	SC			0
560						
		SANDY CLAY, brown, moderately plastic, fine-grained sand (CL)	CL			
565						
570						
		CLAYEY SAND, dark grey, fine to coarse- grained, common plastic fines (SC)	SC			0
575						
580						
		SILTY CLAY, light brown, plastic (CL)	CL			
590						
		SAND, olive, fine to coarse-grained, minor non-plastic fines (SP)	SP			
595						
600		CLAYEY SAND, olive grey, fine-grained (SC)	SC			0

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WHI01.15

Location:

Whittaker Corp. - Bermites Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth  
(feet)

Sample Int.

Logged by: Hal E. Hansen

Checked by: *DD*

Description

Graphic  
Log

BORING/  
WELL  
DETAIL

Comments

Field OVM/OVA  
Reading (ppm)

600	continued from above					0
	CLAYEY SAND, olive grey, fine-grained (SC)					
605		SC				
610	SILTY SAND, light olive brown, fine to coarse-grained (SM)	SM				
615	SANDY CLAY, brown, moderately plastic (CL)	CL				0
620	SAND, olive, fine to coarse-grained, <5% black sand (SP)	SP				
625	SANDY CLAY, olive brown, slightly plastic (SC)	SC				
630	SAND, olive brown, fine to coarse-grained, trace fines (SP)	SP				
635						
640	SANDY CLAY, brown, plastic, fine to coarse-grained sand, occasional gravel (CL)	CL				0
645						
650	SAND, yellowish brown, fine to coarse-grained, 1/4-2 inch gravels, (continued next page)	SP				

# Acton • Mickelson • van Dam, Inc.

Consulting Scientists, Engineers, and Geologists

## Log of Soil Boring MW-10

Coordinates:

Surface Elevation:

Casing Elevation: 1537.49

Reference Elevation:

Reference Desc:

Completion Depth: 701 feet

Project No.

WH01.15

Location:

Whittaker Corp. - Bermite Division  
22116 West Soledad Canyon Road  
Santa Clarita, California

Drilling Company: Water Development Corp.

Driller: Tom Moreland

Drilling Method: Reverse Air and Mud Rotary

OVM/OVA

Foxboro Flame Ionization Detector

Drilling

Time

Date

Start

08:30 am

12-17-91

Finish

2:15 pm

01-17-92

Water Depth

Completion  
486.92 ft

Depth (feet)	Sample Int.	Logged by: Hal E. Hansen	Graphic Log	BORING/ WELL DETAIL	Comments	Field OVM/OVA Reading (ppm)
		Checked by: <i>HH</i>				
		Description				
650		continued from above				
655		SAND, yellowish brown, fine to coarse-grained, 1/4-2 inch gravels, occasional cobble, occasional 1" to 3" thick clay lense (SP)	SP			
660		fine-grained sand at 658 feet				0
665		coarse-grained sand at 665 feet				
670		SANDY CLAY, brown, slightly plastic, fine to coarse-grained sand, some gravel (CL)	CL			
675		SANDY GRAVEL, yellowish brown, 1/2-2 inch gravel, some cobbles (GW)	GW			
680		SANDY CLAY, reddish brown, plastic, fine to coarse-grained sand (CL)	CL			0
685						
690		SANDY GRAVEL, yellowish brown, 1/2-1 inch gravel, fine to coarse-grained sand (GW)	GW			
695						
700		SANDY CLAY, reddish brown, plastic, fine-grained sand (CL)	CL			0
		Terminated drilling at 701 feet.				

**APPENDIX C**

**GROUND WATER SAMPLING**

## **APPENDIX C**

### **GROUND WATER SAMPLING PROCEDURES**

On January 29, 1992, initial depth to water measurements were collected prior to the onset of monitoring well evacuation activities. Operation of the pumps in monitoring wells MW-1, MW-3, MW-4, MW-5, MW-6, and MW-10 was then initiated to evacuate stagnant water. Pumping durations to evacuate these six monitoring wells are summarized in Table C-1. Due to mechanical problems with the respective well pumps, monitoring wells MW-1 and MW-5 were not sampled during the scheduled sampling event but were sampled after repairs were completed. Prior to sample collection, the pumping rate for each monitoring well was reduced to approximately 100 milliliters per minute (ml/min) in a 1/4-inch-diameter tube.

In accordance with the "Ground Water Sampling and Analysis Plan," dated August 1988, evacuated ground water from monitoring wells MW-1, MW-3, MW-5, MW-6, and MW-10 was discharged to the ground surface, downgradient from each monitoring well. Ground water purged from monitoring well MW-4 was pumped and treated through granular activated carbon and discharged into a 44,100-gallon Baker tank located adjacent to the well.

#### **Well Stabilization**

Well stabilization measurements were periodically collected after well evacuation activities were initiated. Stabilization measurements for pH, temperature, and specific conductance were taken three times prior to sampling of each well to increase the likelihood that representative ground water samples were collected. Table C-2 summarizes the results of the stabilization tests. As shown in Table C-2, the reported measurements in each monitoring well indicated a relatively stable condition prior to sampling.

#### **Sample Containers**

Sample containers used for the collection of ground water samples were supplied by Eagle Picher Environmental Services and I-Chem, Inc. The sample containers used were precleaned and sealed at these facilities and are statistically certified as clean and free of volatile organic and metal compounds. Certificates of Analysis for the sample containers used during the quarterly ground water sampling event are provided in this appendix.

#### **Sample Labeling**

Sample identification labels were filled out in the field at the time of sample collection in accordance with the "Ground Water Sampling and Analysis Plan," dated August 1988. A sample identification system was established to clearly and properly label samples. Each label identifies the monitoring well number, analytical parameter required, quarterly sampling event number, and replicate number (if required). A legend is provided in Table C-4 outlining the labeling system.

## **Sample Collection**

### Sampling Volumetric Flow Rate

A Teflon sampling valve and stem were installed into the invert of the well discharge pipe of each monitoring well to minimize aeration and agitation of the collected ground water sample. The flow rates in the monitoring wells were reduced to approximately 100 milliliters/minute (ml/min) in a 1/4-inch-diameter tube prior to sampling.

### Order of Sample Collection

The ground water at each monitoring well was sampled for selected analytical parameters in the same order. This order is presented in Table C-5.

### Field Sample Preservation

Ground water samples collected for dissolved metals were collected and filtered through an in-line, 0.45 micron filter, manufactured by Instrumentation Northwest, Inc. These filters are specially designed for ground water sampling for dissolved metals and are not reused between samples or monitoring wells. A 50 percent nitric acid solution was added to the sample containers after filtration of the ground water sample to lower the pH. The pH of the water sample was monitored with an electric pH meter as the acid was added with a small pipette. Acid was added until a pH of less than 2 was achieved. Samples collected for analysis of TOC and TOX were also preserved. Sulfuric acid was added to the samples using the same procedures discussed above adjusting the pH to less than 2.

Following collection, labeling, and sealing, each individual ground water sample was placed in a refrigerator and locked. On January 30 and March 13, 1992, the samples were placed on ice in a cooler and delivered to the laboratory.

### Field and Trip Sample Blanks

During each quarterly sampling event, field and trip blanks were analyzed for VOCs, TOCs, and TOXs in accordance with the "Ground Water Sampling and Analysis Plan," dated August 1988.

The trip blanks were prepared in the laboratory, transferred to the site in coolers, stored in the refrigerator overnight, transferred to each sampling location during sampling activities, and stored with collected ground water samples throughout the sampling event and delivered to the laboratory.

The field blanks are prepared in the field using water provided by the analytical laboratory. These field blanks, once prepared, were stored with the ground water samples throughout the sampling event and delivered to the laboratory.

## **FIELD QA/QC**

### **Washing of Field Test Equipment**

To minimize the potential for cross-contamination between well samples, field equipment used during sampling activities was decontaminated between each well. Decontamination procedures involved cleaning and rinsing with deionized water before and after each sample was collected at each well. The mercury thermometer, pH probe, nitric and sulfuric acid eye droppers, specific conductance probe, and the water level meter probe were all decontaminated between samples.

Unused sampling gloves were worn by sampling personnel prior to sealing the sample containers with the chain-of-custody seals.

### **Sample Container Labeling and Seals**

As previously stated, the sample containers were labeled in the field as each sample was collected. A unique sample identification number was assigned to each ground water sample. Chain-of-custody seals were then placed on the sample containers after sampling and labeling. The ground water samples were placed on ice in a cooler, and the cooler was sealed with chain-of-custody seals prior to shipment to the laboratory.

### **Chain-of-Custody and Sample Analysis Request Forms**

Chain-of-custody forms were filled out at the time of sample collection and were kept with the samples until they were delivered to the laboratory. Copies of the signed chain-of-custody forms are provided in this appendix.

Sample analysis request forms were also filled out at the time of sample collection and were kept with the samples until they were delivered to the laboratory. Sample analysis request forms are used to inform the laboratory of the analysis to run on each ground water sample. Copies of the sample analysis request forms are provided in this appendix.

### **Delivery of Samples to Laboratory**

Ground water samples were delivered to FGL in Santa Paula, California, by personnel of Whittaker after sampling activities were completed. FGL is approximately 45 minutes by car from the site. Maximum and minimum thermometers were placed in each cooler for temperature verification. Upon arrival at the laboratory, the temperature was recorded on the sample analysis request form. The temperature of the samples was kept below 4° C.

**Security**

Security measures were implemented to minimize the likelihood that unauthorized personnel had access to the wells or ground water samples before, during, or after sampling activities. The site is fenced-in with locking gates and has 24-hour security personnel present. Each monitoring well has a locking cap to deter unauthorized access to the well. The ground water samples were handled by Whittaker personnel only during sampling activities and delivery to FGL.

TABLE C-1

AREA 317 WELL EVACUATION  
BERMITE DIVISION, WHITTAKER CORPORATION

Well Number	Date Pump Started <sup>b</sup>	Evacuation	Sampling <sup>a</sup>	Time and Date of Sample Collection
		Approximate Duration of Pumping (minutes)	Duration of Pumping (minutes)	
MW-1	03/12/92	1,500	10	9:30 (03/13/92)
MW-3	01/29/92	1,250	85	9:00 (01/30/92)
MW-4	01/29/92	1,305	55	9:28 (01/30/92)
MW-5	01/29/92	1,520	40	9:00 (03/26/92)
MW-6	01/29/92	1,235	170	10:13 (01/30/92)
MW-10	01/29/92	1,295	85	9:48 (01/30/92)

<sup>a</sup>Flow rate from wells was reduced prior to sampling. Actual sample extraction flow rate for all wells approximately 100 milliliter/minute in a 1/4-inch pipe.

<sup>b</sup>All pumps started between 10:45 and 11:00 a.m. Monitoring well MW-1 pump shut off after 530 minutes due to broken rod. Sampled at a later date after pump was repaired and evacuation procedures reinitiated. Monitoring well MW-5 pump shut off after 1,255 minutes due to broken rod. Also sampled at a later date.

TABLE C-2

WELL STABILIZATION TESTS  
BERMITE DIVISION, WHITTAKER CORPORATION

Well	Temperature (° C.)	pH	Specific Conductance (μmhos)*	Time and Date
MW-1	22.7	7.10	615	15:00 - 3/12/92
	22.7	7.00	641	07:00 - 3/13/92
	23.0	7.13	634	09:00 - 3/13/92
MW-3	23.3	7.16	637	13:45 - 1/29/92
	22.8	7.01	629	17:15 - 1/29/92
	22.9	7.06	635	07:35 - 1/30/92
MW-4	23.0	6.75	516	13:35 - 1/29/92
	22.0	7.19	545	18:15 - 1/29/92
	22.0	7.14	538	08:30 - 1/30/92
MW-5	22.3	7.37	540	12:00 - 3/25/92
	22.9	7.26	552	15:00 - 3/25/92
	22.9	7.01	535	08:00 - 3/26/92
MW-6	22.9	7.33	516	13:20 - 1/29/92
	22.5	7.09	526	16:50 - 1/29/92
	22.5	7.11	528	07:20 - 1/30/92
MW-10	23.0	7.36	591	13:45 - 1/29/92
	22.9	7.17	586	18:25 - 1/29/92
	22.8	7.20	585	08:20 - 1/30/92

\*μmhos - micromhos.

TABLE C-3

LABORATORY ANALYTICAL METHODS AND SAMPLE VOLUME  
AND CONTAINER REQUIREMENTS  
AREA 317 GROUND WATER MONITORING WELLS  
WHITTAKER CORPORATION, BERMITE DIVISION

Constituent	Analytical Method	Sample Volume (milliliters)	Container Type
<b>Indicator Parameters</b>			
pH	EPA 150.1	50	Plastic/glass
Specific Conductance	EPA 120.1	100	Plastic
Total Organic Carbon	EPA 9060	250	Amber glass-TFE cap
Total Organic Halogen	EPA 9020	250	Amber glass-TFE cap
<b>Ground Water Quality Parameters</b>			
Sulfate	EPA 375.4	200	Plastic/glass
Sodium	EPA 6010	200	Plastic
Iron	EPA 6010	200	Plastic
Manganese	EPA 6010	200	Plastic
Phosphorus	EPA 365.4	100	Plastic/glass
Fluoride	EPA 340.2	100	Plastic/glass
Chloride	SM 407C	100	Plastic/glass
Arsenic	EPA 7060	100	Plastic
Barium	EPA 6010	100	Plastic
Cadmium	EPA 7131	100	Plastic
Chromium	EPA 7191	100	Plastic
Lead	EPA 7421	100	Plastic
Mercury	EPA 7470	200	Plastic/glass
Selenium	EPA 7741	100	Plastic
Silver	EPA 7761	100	Plastic
<b>Hazardous Constituent Parameters</b>			
Volatile Organic Compounds	EPA 624	3 x 40	Amber glass-TFE cap
Antimony	EPA 7041	100	Plastic
Copper	EPA 6010	100	Plastic
Thallium	EPA 7841	100	Plastic

TABLE C-4

AREA 317  
KEY TO ANALYSIS DESIGNATION LABELS ON SAMPLE CONTAINERS  
BERMITE DIVISION, WHITTAKER CORPORATION

Analysis Designation	Parameter(s) to be Analyzed
A	pH Specific Conductance (temperature corrected)
B	Total Organic Carbon (TOC)
C	Total Organic Halogen (TOX)
H	Sulfate, Chloride, Sodium, Iron, Manganese
I	Total Phosphate
K	Dissolved Metals: Antimony, Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium
N	Flouride
O	Volatile Organics

Each sample container was labeled with a unique sample number. The form of each label was as follows:

Well I.D./Analysis Designation/Sample Event No./Replicate No.

**Where:**

Well I.D. = MW-1, MW-3, MW-4, MW-5, MW-6, or MW-10.

Analysis Designation = A through O according to above table.

Sample Event No. = 1 through present event number.

Replicate No. = 1 through 4.

**Note:** Absence of replicate number indicates that replicate samples were not required.

TABLE C-5  
ORDER OF SAMPLE COLLECTION  
BERMITE DIVISION, WHITTAKER CORPORATION

1	Volatile Organics
2	Total Organic Carbon (TOC)
3	Total Organic Halogen (TOX)
4	pH, Specific Conductance
5	Dissolved Metals
6	Dissolved Silver
7	Sulfate, Chloride, Sodium, Iron, Manganese
8	Fluoride
9	Total Phosphate

# Certificate of Analysis

Bottle Type & QA Level: Z Level 1

Description : 250 mL. Amber B.R.

Lot No.: Z1139010

Date: 6-12-91

## PESTICIDE EXTRACTABLES QUALITY CONTROL ANALYSIS

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

<u>Compound Analyzed</u>	<u>Quantity Found (ng/bottle)</u>
alpha-BHC.....	<.01
gamma-BHC (Lindane).....	<.01
beta-BHC.....	<.01
Heptachlor.....	<.01
delta-BHC.....	<.01
Aldrin.....	<.01
Heptachlor epoxide.....	<.01
Endosulfan I.....	<.01
4,4'-DDE.....	<.02
Dieldrin.....	<.02
Endrin.....	<.02
4,4'-DDD.....	<.02
Endosulfan II.....	<.02
4,4'-DDT.....	<.02
Endosulfan sulfate.....	<.02
Methoxychlor.....	<.10
Endrin Ketone.....	<.02
Chlordane (tech).....	<.01
Toxaphene.....	<1.0
Arochlor-1016.....	<.2
Arochlor-1221.....	<.2
Arochlor-1232.....	<.40
Arochlor-1242.....	<.2
Arochlor-1248.....	<.2
Arochlor-1254.....	<.2
Arochlor-1260.....	<.2

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved: Jul. Shepherd

Date : 6-12-91



**EAGLE  PICHER**

**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: 2 Level 1

Description : 250 mL. Amber B.R.

Lot No.: Z1139010

Date: 6-12-91

## BASE/NEUTRAL/ACID EXTRACTABLES QUALITY CONTROL ANALYSIS

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

<u>Compound Analyzed</u>	<u>Quantity Found (ng/bottle)</u>
Phenol.....	<5.
Bis(2-Chlorethyl)ether.....	<5.
2-Chlorophenol.....	<5.
1,3-Dichlorobenzene.....	<5.
1,4-Dichlorobenzene.....	<5.
Benzyl Alcohol.....	<5.
2-Methylphenol.....	<5.
Bis(2-Chloroisopropyl)ether.....	<5.
4-Methylphenol.....	<5.
N-Nitroso-di-n-propylamine.....	<5.
Hexachloroethane.....	<5.
Nitrobenzene.....	<5.
Isophorone.....	<5.
2-Nitrophenol.....	<5.
2,4-Dimethylphenol.....	<5.
Benzoic Acid.....	<5.
Bis(2-Chloroethoxy)methane.....	<5.
2,4-Dichlorophenol.....	<5.
1,2,4-Trichlorobenzene.....	<5.
Naphthalene.....	<5.
4-Chloroaniline.....	<5.
Hexachlorobutadiene.....	<5.
4-Chloro-3-methylphenol.....	<5.
(para-chloro-meta-cresol)	
2-Methylnaphthalene.....	<5.
Hexachlorocyclopentadiene.....	<5.
2,4,6-Trichlorophenol.....	<5.
2,4,5-Trichlorophenol.....	<20.
2-Chloronaphthalene.....	<5.
2-Nitroaniline.....	<20.
Dimethylphthalate.....	<5.
Acenaphthylene.....	<5.

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved: *Jul. Shepherd*

Date : 6-12-91



**EAGLE  PICHER**

**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: Z Level 1

Description : 250 mL. Amber B.R.

Lot No.: Z1139010

Date: 6-12-91

BASE/NEUTRAL/ACID EXTRACTABLES QUALITY CONTROL ANALYSIS PAGE 2

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

<u>Compound Analyzed</u>	<u>Quantity Found (ng/bottle)</u>
2,6-Dinitrotoluene.....	<5.
3-Nitroaniline.....	<20.
Acenaphthene.....	<5.
2,4-Dinitrophenol.....	<20.
4-Nitrophenol.....	<20.
Dibenzofuran.....	<5.
2,4-Dinitrotoluene.....	<5.
Diethylphthalate.....	<5.
4-Chlorophenyl-phenyl ether.....	<5.
Fluorene.....	<5.
4-Nitroaniline.....	<20.
4,6-Dinitro-2-methylphenol.....	<20.
4-Bromophenyl-phenyl ether.....	<5.
Hexachlorobenzene.....	<5.
Pentachlorophenol.....	<20.
Phenanthrene.....	<5.
Anthracene.....	<5.
Di-N-Butylphthalate.....	<5.
Fluoranthene.....	<5.
Pyrene.....	<5.
Butylbenzylphthalate.....	<5.
3,3'-Dichlorobenzidine.....	<5.
Benzo(a)anthracene.....	<5.
Chrysene.....	<5.
Bis(2-ethylhexyl)phthalate.....	<5.
Di-n-Octylphthalate.....	<5.
Benzo(b)fluoranthene.....	<5.
Benzo(k)fluoranthene.....	<5.
Benzo(a)pyrene.....	<5.
Indeno(1,2,3-cd)pyrene.....	<5.
Dibenzo(a,h)anthracene.....	<5.
Benzo(g,h,i)perylene.....	<5.

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved: Jul. Shepherd

Date : 6-12-91



**EAGLE P Picher**

**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: 2 Level 1

Description : 250 mL. Amber B.R.

Lot No.: Z1010010

Date: 1-17-91

## PESTICIDE EXTRACTABLES QUALITY CONTROL ANALYSIS

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

<u>Compound Analyzed</u>	<u>Quantity Found (ng/bottle)</u>
alpha-BHC.....	<.03
gamma-BHC (Lindane).....	<.03
beta-BHC.....	<.03
Heptachlor.....	<.03
delta-BHC.....	<.03
Aldrin.....	<.03
Heptachlor epoxide.....	<.03
Endosulfan I.....	<.03
4,4'-DDE.....	<.06
Dieldrin.....	<.06
Endrin.....	<.06
4,4'-DDD.....	<.06
Endosulfan II.....	<.06
4,4'-DDT.....	<.06
Endosulfan sulfate.....	<.06
Methoxychlor.....	<.30
Endrin Ketone.....	<.06
Chlordane (tech).....	<.30
Toxaphene.....	<.30
Arochlor-1016.....	<.30
Arochlor-1221.....	<.30
Arochlor-1232.....	<.30
Arochlor-1242.....	<.30
Arochlor-1248.....	<.30
Arochlor-1254.....	<.60
Arochlor-1260.....	<.60

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved: 

Date : 1-17-91



**EAGLE  PICHER**

**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: Z Level 1

Description : 250 mL. Amber B.R.

Lot No.: Z1010010

Date: 1-17-91

## BASE/NEUTRAL/ACID EXTRACTABLES QUALITY CONTROL ANALYSIS

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

### Compound Analyzed

### Quantity Found (ng/bottle)

Phenol.....	<1.
Bis(2-Chlorethyl)ether.....	<1.
2-Chlorophenol.....	<1.
1,3-Dichlorobenzene.....	<1.
1,4-Dichlorobenzene.....	<1.
Benzyl Alcohol.....	<1.
2-Methylphenol.....	<1.
Bis(2-Chloroisopropyl)ether.....	<1.
4-Methylphenol.....	<1.
N-Nitroso-di-n-propylamine.....	<1.
Hexachloroethane.....	<1.
Nitrobenzene.....	<1.
Isophorone.....	<1.
2-Nitrophenol.....	<1.
2,4-Dimethylphenol.....	<1.
Benzoic Acid.....	<1.
Bis(2-Chloroethoxy)methane.....	<1.
2,4-Dichlorophenol.....	<1.
1,2,4-Trichlorobenzene.....	<1.
Naphthalene.....	<1.
4-Chloroaniline.....	<1.
Hexachlorobutadiene.....	<1.
4-Chloro-3-methylphenol.....	<1.
(para-chloro-meta-cresol)	
2-Methylnaphthalene.....	<1.
Hexachlorocyclopentadiene.....	<1.
2,4,6-Trichlorophenol.....	<1.
2,4,5-Trichlorophenol.....	<1.
2-Chloronaphthalene.....	<1.
2-Nitroaniline.....	<1.
Dimethylphthalate.....	<1.
Acenaphthylene.....	<1.

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved:

*Jul. Shepherd*



Date 1-17-91

**EAGLE  PICHER**

**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: Z Level 1

Description : 250 mL. Amber B.R.

Lot No.: Z1010010

Date: 1-17-91

BASE/NEUTRAL/ACID EXTRACTABLES QUALITY CONTROL ANALYSIS PAGE 2

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

Compound Analyzed

Quantity Found (ng/bottle)

2,6-Dinitrotoluene.....	<1.
3-Nitroaniline.....	<1.
Acenaphthene.....	<1.
2,4-Dinitrophenol.....	<1.
4-Nitrophenol.....	<1.
Dibenzofuran.....	<1.
2,4-Dinitrotoluene.....	<1.
Diethylphthalate.....	<1.
4-Chlorophenyl-phenyl ether.....	<1.
Fluorene.....	<1.
4-Nitroaniline.....	<1.
4,6-Dinitro-2-methylphenol.....	<1.
4-Bromophenyl-phenyl ether.....	<1.
Hexachlorobenzene.....	<1.
Pentachlorophenol.....	<1.
Phenanthrene.....	<1.
Anthracene.....	<1.
Di-N-Butylphthalate.....	<1.
Fluoranthene.....	<1.
Pyrene.....	<1.
Butylbenzylphthalate.....	<1.
3,3'-Dichlorobenzidine.....	<1.
Benzo(a)anthracene.....	<1.
Chrysene.....	<1.
Bis(2-ethylhexyl)phthalate.....	<1.
Di-n-Octylphthalate.....	<1.
Benzo(b)fluoranthene.....	<1.
Benzo(k)fluoranthene.....	<1.
Benzo(a)pyrene.....	<1.
Indeno(1,2,3-cd)pyrene.....	<1.
Dibenzo(a,h)anthracene.....	<1.
Benzo(g,h,i)perylene.....	<1.

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved: 

Date : 1-17-91 

**EAGLE  PICHER**

**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: Z Level 1

Description : 250 mL. Amber B.R.

Lot No.: Z1139010

Date: 6-12-91

## PESTICIDE EXTRACTABLES QUALITY CONTROL ANALYSIS

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

<u>Compound Analyzed</u>	<u>Quantity Found (ng/bottle)</u>
alpha-BHC.....	<.01
gamma-BHC (Lindane).....	<.01
beta-BHC.....	<.01
Heptachlor.....	<.01
delta-BHC.....	<.01
Aldrin.....	<.01
Heptachlor epoxide.....	<.01
Endosulfan I.....	<.01
4,4'-DDE.....	<.02
Dieldrin.....	<.02
Endrin.....	<.02
4,4'-DDD.....	<.02
Endosulfan II.....	<.02
4,4'-DDT.....	<.02
Endosulfan sulfate.....	<.02
Methoxychlor.....	<.10
Endrin Ketone.....	<.02
Chlordane (tech).....	<.01
Toxaphene.....	<1.0
Arochlor-1016.....	<.2
Arochlor-1221.....	<.2
Arochlor-1232.....	<.40
Arochlor-1242.....	<.2
Arochlor-1248.....	<.2
Arochlor-1254.....	<.2
Arochlor-1260.....	<.2

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved: 

Date : 6-12-91



**EAGLE  PICHER**

**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: Z Level 1

Description : 250 mL. Amber B.R.

Lot No.: Z1139010

Date: 6-12-91

## BASE/NEUTRAL/ACID EXTRACTABLES QUALITY CONTROL ANALYSIS

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

Compound Analyzed	Quantity Found (ng/bottle)
Phenol.....	<5.
Bis(2-Chlorethyl)ether.....	<5.
2-Chlorophenol.....	<5.
1,3-Dichlorobenzene.....	<5.
1,4-Dichlorobenzene.....	<5.
Benzyl Alcohol.....	<5.
2-Methylphenol.....	<5.
Bis(2-Chloroisopropyl)ether.....	<5.
4-Methylphenol.....	<5.
N-Nitroso-di-n-propylamine.....	<5.
Hexachloroethane.....	<5.
Nitrobenzene.....	<5.
Isophorone.....	<5.
2-Nitrophenol.....	<5.
2,4-Dimethylphenol.....	<5.
Benzoic Acid.....	<5.
Bis(2-Chloroethoxy)methane.....	<5.
2,4-Dichlorophenol.....	<5.
1,2,4-Trichlorobenzene.....	<5.
Naphthalene.....	<5.
4-Chloroaniline.....	<5.
Hexachlorobutadiene.....	<5.
4-Chloro-3-methylphenol.....	<5.
(para-chloro-meta-cresol)	
2-Methylnaphthalene.....	<5.
Hexachlorocyclopentadiene.....	<5.
2,4,6-Trichlorophenol.....	<5.
2,4,5-Trichlorophenol.....	<20.
2-Chloronaphthalene.....	<5.
2-Nitroaniline.....	<20.
Dimethylphthalate.....	<5.
Acenaphthylene.....	<5.

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved:

*Jul. Shepherd*



Date : 6-12-91

**EAGLE  PICHER**  
**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: 2 Level 1

Description : 250 mL. Amber B.R.

Lot No.: 21139010

Date: 6-12-91

BASE/NEUTRAL/ACID EXTRACTABLES QUALITY CONTROL ANALYSIS PAGE 2

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

Compound Analyzed	Quantity Found (ng/bottle)
2,6-Dinitrotoluene.....	<5.
3-Nitroaniline.....	<20.
Acenaphthene.....	<5.
2,4-Dinitrophenol.....	<20.
4-Nitrophenol.....	<20.
Dibenzofuran.....	<5.
2,4-Dinitrotoluene.....	<5.
Diethylphthalate.....	<5.
4-Chlorophenyl-phenyl ether.....	<5.
Fluorene.....	<5.
4-Nitroaniline.....	<20.
4,6-Dinitro-2-methylphenol.....	<20.
4-Bromophenyl-phenyl ether.....	<5.
Hexachlorobenzene.....	<5.
Pentachlorophenol.....	<20.
Phenanthrene.....	<5.
Anthracene.....	<5.
Di-N-Butylphthalate.....	<5.
Fluoranthene.....	<5.
Pyrene.....	<5.
Butylbenzylphthalate.....	<5.
3,3'-Dichlorobenzidine.....	<5.
Benzo(a)anthracene.....	<5.
Chrysene.....	<5.
Bis(2-ethylhexyl)phthalate.....	<5.
Di-n-Octylphthalate.....	<5.
Benzo(b)fluoranthene.....	<5.
Benzo(k)fluoranthene.....	<5.
Benzo(a)pyrene.....	<5.
Indeno(1,2,3-cd)pyrene.....	<5.
Dibenzo(a,h)anthracene.....	<5.
Benzo(g,h,i)perylene.....	<5.

NOTE: ppb =  $\frac{\text{Quantity (in nanograms)}}{\text{Container volume (in mL)}}$

Approved: 



Date : 6-12-91

**EAGLE  PICHER**  
**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

# Certificate of Analysis

Bottle Type & QA Level: L Level 1

Description : 500 mL. White HDPE

Lot No.: L1110010

Date: 4-28-91

## METALS QUALITY CONTROL ANALYSIS

This is to certify that this lot was tested and found to comply with Eagle-Picher Environmental Services specifications for this product.

### Compound Analyzed

### Quantity Found (ug/L)

Silver.....	<10
Aluminum.....	<100
Arsenic.....	<.5
Barium.....	<20
Beryllium.....	<.5
Calcium.....	<100
Cadmium.....	<1
Cobalt.....	<10
Chromium.....	<10
Copper.....	<10
Cyanide.....	<10
Iron.....	<100
Mercury.....	<.2
Potassium.....	<100
Magnesium.....	<100
Manganese.....	<10
Sodium (Polyethylene).....	<100
Nickel.....	<20
Lead.....	<2
Antimony.....	<5
Selenium.....	<2
Thallium.....	<10
Vanadium.....	<10
Zinc.....	<20

Approved:

*Jul. Shepherd*



Date

4-28-91

**EAGLE  PICHER**  
**ENVIRONMENTAL SERVICES**

36 B. J. TUNNELL BLVD. EAST • MIAMI, OKLAHOMA 74354-3300 • (800) 331-7425

FIELD COORDINATOR

GLEN ABDUN-NUR

## CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME																			
85-01-4		14TH. QTRLY. WATER BERMITE SAMPLING 317 AREA																			
SAMPLERS (Signature)						NUMBER OF CONTAINERS		PH ADJUSTED TO H <sub>2</sub> SO <sub>4</sub> & 2		PH ADJUSTED HCl		PH ADJUSTED TO HNO <sub>3</sub> & 2								REMARKS	
STA NO.	DATE	TIME	COMP	GRAB	STATION LOCATION																
W3/A/14/1-4	11/30/92	0900		✓	MONITORING WELL 3	4															ANALYSIS TYPE A
W3/B/14/1-4	11	0902		✓	"	4	X														B
W3/C/14/1-4	11	0908		✓	"	4	X														C
W3/H/14	11	0912		✓	"	1															H
W3/I/14	11	0913		✓	"	1															I
W3/K/14	11	0914		✓	"	1				X											K
W5/B/14/1A	11	1315		✓	MONITORING WELL 5	1	X														B
W5/C/14/1A	11	1316		✓	"	1	X														C
W5/O/14/1A	11	1312		✓	"	3		X													O
W6/O/14/1A	11	1028		✓	MONITORING WELL 6	1	X														B
W6/C/14/1A	11	1029		✓	"	1	X														C
W6/O/14/1A	11	1025		✓	"	3		X													O
Relinquished by: (Signature)			Date	Time	Received by: (Signature)			Relinquished by: (Signature)			Date	Time	Received by: (Signature)								
			11/30/92	1600																	
Relinquished by: (Signature)			Date	Time	Received by: (Signature)			Relinquished by: (Signature)			Date	Time	Received by: (Signature)								
Relinquished by: (Signature)			Date	Time	Received for Laboratory by: (Signature)			Date	Time	Remarks											

FIELD COORDINATOR

## CHAIN OF CUSTODY RECORD

GLEN ABDON-NOR

PROJ. NO.		PROJECT NAME				NUMBER OF CONTAINERS	PH ADJUSTED TO H <sub>2</sub> SO <sub>4</sub> & 2	PH ADJUSTED HCl					REMARKS
SAMPLERS (Signature)		STA. NO.	DATE	TIME	COMP				GRAB	STATION LOCATION			
85-01.4		14TH. QTRLY. WATER BERMITE SAMPLING 317 AREA											
[Signature]													
W4/A/14	1-4	11/30/92	0928			✓	MONITORING WELL 4	4					ANALYSIS TYPE A
W4/B/14	1-4	11	0932			✓	"	4	X				" B
W4/C/14	1-4	11	0936			✓	"	4	X				" C
W4/D/14	1-4	11	0925			✓	"	3		X			" O
W6/A/14	1-4	11	1013			✓	MONITORING WELL 6	4					" A
W6/B/14	1-4	11	1017			✓	"	4	X				" B
W6/C/14	1-4	11	1021			✓	"	4	X				" C
W6/D/14	1-4	11	1010			✓	"	3		X			" O
W10/A/14	1-4	11	0948			✓	MONITORING WELL 10	4					" A
W10/B/14	1-4	11	0952			✓	"	4	X				" B
W10/C/14	1-4	11	0956			✓	"	4	X				" C
W10/D/14	1-4	11	0945			✓	"	3		X			" O
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)			
[Signature]		11/30/92	1600	M. Hernandez									
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Relinquished by: (Signature)		Date	Time	Received by: (Signature)			
Relinquished by: (Signature)		Date	Time	Received for Laboratory by: (Signature)		Date	Time	Remarks					



**FIELD COORDINATOR**

## CHAIN OF CUSTODY RECORD

GLEN ABDUN-NUR

[illegible]

## SAMPLE ANALYSIS REQUEST

Sampling InformationProject No. 85-01.4Project Name: BERMITE <sup>14TH. STRLY WATER</sup> SAMPLING 317 AREASampler Name: GLENN ABDUN-NUR/TIM BRICKER Tele. No. (805) 259-2241Name of Person Receiving Samples: Maria HernandezDate Samples Received: 1-30-92Internal Temperature of Sample Container: 0°C

Notes on Samples: \_\_\_\_\_

## Analysis Required

Sample I.D.	Laboratory I.D.	pH	SPECIFIC CONDUCTANCE	TOC	TOX	HEAVY METALS	NO <sub>3</sub> -N	NO <sub>2</sub> -N
MW4/A/14/1-4	200461 9-12	X						
MW4/B/14/1-4	200470 9-12			X				
MW4/C/14/1-4	200471 9-12				X			
MW4/O/14	200468-7					X		
MW6/A/14/1-4	200461 13-16	X						
MW6/B/14/1-4	200470 13-16			X				
MW6/C/14/1-4	200471 13-16				X			
MW6/O/14	200468-9					X		
MW10/A/14/1-4	200461-29-32	X						
MW10/B/14/1-4	200470-29-32			X				
MW10/C/14/1-4	200471 29-32				X			
MW10/O/14	200468-9					X		

## SAMPLE ANALYSIS REQUEST

### Sampling Information

Project No. 85-01.4

Project Name: BERMITE SAMPLING 312 AREA 14TH. QTRLY. WATER

Sampler Name: GLENA BOUN-NOR/TIM BRICKER Tele. No. (805) 259-2241

Name of Person Receiving Samples: Maria Hernandez

Date Samples Received: 1-30-92

Internal Temperature of Sample Container: 0°C

Notes on Samples: \_\_\_\_\_

### Analysis Required

Sample I.D.	Laboratory I.D.	pH	SPECIFIC CONDUCTANCE	TOC	Tox	SULFATE, CHLORIDE	METALS BY ICP	TOTAL PHOSPHATE	EPA 604 VOC's
MW3/A/14/1-4	200461 5-8	X							
MW3/B/14/1-4	200470 5-8			X					
MW3/C/14/1-4	200471 5-8				X				
MW3/H/14	200465-5					X			
MW3/K/14	200467-5						X		
MW3/E/14	200465-5							X	
MW5/B/14/1A	200470-33			X					
MW5/C/14/1A	200471-33				X				
MW5/O/14/1A	2004108-5								X
MW6/B/14/1A	200470-34			X					
MW6/C/14/1A	200471-34				X				
MW6/O/14/1A	2004108-6								X

X✓  
!✓  
!✓  
X✓

2-4570

## SAMPLE ANALYSIS REQUEST

Sampling InformationProject No. 85-01.4Project Name: BERNITE <sup>14 TH. QTRLY. WATER</sup>  
<sup>SAMPLING EVENT BIT AREA</sup>Sampler Name: GLEN ABDUN-NUR/TIM BRICKER Tele. No. (805) 259-2241Name of Person Receiving Samples: P. AguirreDate Samples Received: 3/13/92Internal Temperature of Sample Container: 0°

Notes on Samples: \_\_\_\_\_

## Analysis Required

Sample I.D.	Laboratory I.D.	SPECIFIC CONDUCTANCE PH	TOC	TOX	SULFATE, CHLORIDE	PHOSPHATE	DISSOLVED METALS BY ICP
MW1/A/14/1-4	201222-1 thru 4	X					
MW1/B/14/1-4	201223 1-4		X				
MW1/C/14/1-4	201224 1-4			X			
MW1/H/14	201225				X		
MW1/I/14	201225					X	
MW1/K/14	201226						X

## SAMPLE ANALYSIS REQUEST

### Sampling Information

Project No. 85-01.4 Project Name: BERMITE

Sampler Name: GLEN ABDUN-NUR/TIM BRICKER Tele. No. (805) 259-2241

Name of Person Receiving Samples: Maria Hernandez

Date Samples Received: March 26, 1992

Internal Temperature of Sample Container: 0°C

Notes on Samples: Custody Seals intact

### Analysis Required

[illegible]

## **APPENDIX D**

### **FGL QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROGRAM**

# GL ENVIRONMENTAL

## ANALYTICAL CHEMISTS

QUALITY ASSURANCE MANUAL FOR WATER  
ANALYSES AND HAZARDOUS WASTE ANALYSES

### Sampling

1. Samples should be representative of the source.
2. For chemical tests, the source should be run for a minimum of 15 minutes before sampling. Plastic containers may be used, except those for which glass containers should be used (See EPA Manual for preservation and holding time).
3. Fresh drawn samples are preferred.
4. For microbiological tests:
  - a. We prefer to collect samples in sterile bottles provided by this laboratory.
  - b. Allow the water to run for at least three (3) minutes and turn off. Burn the faucet with propane burner and turn on the water again for about one (1) minute to flush out loose crust. Carefully fill our bottle to about  $\frac{1}{2}$  inch from the top. Return the sample to the laboratory without delay. Samples that are not processed immediately should be stored in the refrigerator. Samples should be processed within six (6) hours from time of sampling. Under no circumstance can processing be more than thirty (30) hours after sampling. (See Standard Methods, 16th Edition, Page 859.)
5. Make available in the sample receiving area written instructions for sample preservation.

### Chain of Custody

1. When sample arrives, enter in the log book, lab tag and/or work sheet the following information:
  - a. Date the sample was received.
  - b. Sampler's name.
  - c. Description of sample.
  - d. Type of analysis desired.
2. Attach the lab tag onto the container. The sample is then turned over to the analyst. The analyst will have custody of the sample until analyses are completed.
3. Chain of custody samples will be either in the immediate possession of the receiving analyst or in the appropriate locked sample storage.

### Laboratory Operations

- .. Deionized water
  - a. Set the automatic shut-off water at a resistance of 500,000 ohms.
  - b. The DI water should be checked monthly for pH and standard plate count.
  - c. DI water should be tested annually for inhibitory residue suitability and heavy metals (to include lead, cadmium, chromium, copper, nickel and zinc).
1. Instruments
  - a. Follow operations procedures outlined in manufacturer's handbook that comes with the instruments.

- b. Have qualified specialists certify the analytical balances once a year.
- c. pH meter should be standardized on the day of use with two (2) buffer solutions (pH4, 7 and/or 10).
- d. Conductivity meter should be standardized once a month with 0.01 NKCL solution.
- e. Turbidity meter should be standardized with standards before use. A 4.0 NTU standard made from EPA procedures should be checked once a month against commercial standard.
- f. Do not use reference electrode that contains AG:AgCl for pH adjustment when silver is the analyte.
- g. When using HGA, metal standards should be tested in duplicate. The difference should not exceed UCL. If exceeded, repeat the analysis and investigate the cause. Corrective actions should be taken before proceeding with quantitative analysis.
- h. The lab director should be notified immediately if any sign of malfunction occurs on any instrument so that he can decide if a qualified serviceman should be consulted.

### 3. Method of Analysis

Use methods from EPA Manual (600-4-79-020 & SW846) or standard methods. If method other than these are used, indicate in the report the reference.

### Quality Control

#### 1. Drinking water analyses:

- a. Each analyst should be trained until the analyst is competent to run the test.
- b. Metal analyses should be made with one or two standards along with the unknown, depending on the instructions in the procedure. If the standard deviates beyond the UCL, rerun the standard and the sample.
- c. Once a year, ranges, UCL, UWL of each metal test should be calculated and recorded.
- d. For trace analyses, all glasswares should be cleaned with nitric acid and rinsed with DI water.
- e. Consult EPA QC Handbook, pages 9-2, 9-3, 9-4 for skills time rating of various tests.
- f. For general mineral analysis, check the anion and cation balances. If the difference is more than 0.3 mg/l or 5% whichever is greater, recheck the analysis.
- g. Anytime a new batch of titrant is made, standard should be analyzed in triplicate to insure that the new titrant is suitable.
- h. For auto analyses, at least three (3) standard solutions should be included for every 37 or less samples.
- i. Make chemical standards for BOD5 and COD tests and check it monthly.
- j. Participate in EPA and/or State sponsored referee sample programs.
- k. Save EPA samples to be used for quality control purposes.
- l. When metal analysis of drinking water exceeds MCL levels, repeat the analysis and/or check with alternative method when available.
- m. Lab Director will review all the data on inorganic chemical analyses before reporting.

#### 2. Microbiological analyses:

- a. Media stored in our refrigerator should be incubated at the appropriate temperature for 24 hours before being used and tubes showing any change should be discarded.
- b. Check pH of all media after each sterilization.

- c. Date all chemicals.
- d. Inspect all media in the tubes before use, to make sure that there are no bubbles present. Notify clients by phone when three or more positive tubes are found. Indicate in report the name of person contacted and the date of notification.
- e. Do not use mouth pipet for waste water samples. Use pipet bulb.
- f. All thermometers should be standardized against a certified thermometer and record such information in the log book.
- g. Temperature of incubator should be checked and recorded daily.

### 3. Hazardous Waste Analyses

- a. A log book should be maintained for preparation of all standards, information such as suppliers, lot numbers, wt/vol. of standards used, date prepared and name of analyst should be recorded.
- b. A log book shall be maintained documenting repairs and maintenance of equipment.
- c. For all organic analyses, three point calibration curves should be run and documented. On each working day, standards should be run and so long as the standards are within 20% of the predicted response, samples can be run. Otherwise the three point calibration will be rerun. Sample data must be bracketed by standards.
- d. For organic analyses by GC, all positive results should be confirmed either by a second dissimilar column or by GC/MS.
- e. These standards will be used for calibration. AA flame analysis calibration data for standards should be recorded in a laboratory notebook or work sheet.
- f. Check standards should be run every 15 samples for AA analysis.
- g. Organic analysis, blanks, duplicates and spike will be analyzed once for each batch of samples, or type of matrix or 20 samples, whichever is more frequent. The location of chromatogram for blanks, duplicates and spikes will be noted on sample worksheets for each batch. For inorganic metal analysis, the spikes and duplicates will be recorded in notebook or worksheet.
- h. Results of analysis on blanks will be recorded on the worksheet of the batch.
- i. Records of analysis of external reference samples such as those from EPA, MBS or other sources should be maintained for inspection and review.
- j. Current acceptance limits on metal analysis is  $\pm 10\%$  on duplicates and spikes. It will be  $\pm 30\%$  on duplicates and spikes for organic analyses (Methods 8150, 8120, 8040, 8080). Standard deviation on duplicates and spikes will be developed after 20 analyses. And the acceptance limits will become  $\pm 3$  standard deviations.
- k. All analytical and quality control results should be reviewed and approved by a supervisor. Approval of the work will be indicated by supervisor's signature.
- l. When quality control data is out of control, the analyst should:
  - 1) recheck calculation
  - 2) recalibrate the three standards
  - 3) if that fails, reanalyze the sample, starting from beginning.
  - 4) if that fails, indicate in the report the suspicion of matrix interference.
- m. All analytical procedures for sample analysis should be referenced in the final report.
- n. For GC/MS analyses, the overall precision and accuracy of recovery is monitored by the addition of surrogate standards to every sample.
- o. For corrosivity test, a minimum of four coupons should be maintained.

HAZARDOUS WASTE TESTING LABORATORY CERTIFICATION LIST  
Hazardous Materials Laboratory Section, California Department of Health Services, 2151 Berkeley Way, Berkeley, CA 94704

10 Ironmontal  
10. Joration Street  
10 Paula, CA 93060

PHONE: (805) 525-3824

LABORATORY CATEGORY: Commercial  
CERTIFICATE NUMBER: 135

ORGANIC CHEMICAL TESTING	METHOD NUMBER (DATE CERTIFIED)	(Y = CERTIFIED; N = NOT CERTIFIED)
1 Halogenated Volatile Organics	8010(11-28-83)	Y
2 Non-Halogenated Volatile Organics		N
3 Aromatic Volatile Organics	8020(05-25-85)	Y
4 Protein, Acrylonitrile, Acetonitrile		N
5 Enols	8040(05-25-85)	Y
6 Phthalate Esters		N
7 Organochlorine Pesticides	8080(06-25-85)	Y
8 Polychlorinated Biphenyls (PCBs)	8080(06-25-85)	Y
9 Monoaromatics and Cyclic Ketones		N
10 Polynuclear Aromatic Hydrocarbons		N
11 Chlorinated Hydrocarbons	8120(06-25-85)	Y
12 Organophosphorus Pesticides		N
13 Unchlorinated Herbicides	8150(06-25-85)	Y
14 Carbamates		N
15 /MS Method for Volatile Organics	8240(02-25-87)	Y
16 /MS Method for Semivolatile Organics	8270(05-12-87)	Y

INORGANIC CHEMICAL TESTING	METHOD NUMBER (DATE CERTIFIED)	(Y = CERTIFIED; N = NOT CERTIFIED)
1 Antimony	7041(05-25-85)	Y
2 Arsenic	7050(05-25-85)	Y
3 Barium	5010(05-25-85)	Y
4 Beryllium	5010(05-25-85)	Y
5 Cadmium	7130(06-25-85) 7131(05-25-85)	Y
6 Chromium(VI)	7195(05-25-85)	Y
7 Chromium(total)	7190(05-25-85)	Y
8 Cobalt	5010(05-25-85)	Y
9 Copper	7210(05-25-85)	Y
10 Lead	7420(05-25-85) 7421(05-25-85)	Y
11 Mercury	7470(05-25-85)	Y
12 Molybdenum	5010(05-25-85)	Y
13 Nickel	7520(05-25-85)	Y
14 Selenium	7740(05-25-85)	Y
15 Silver	7760(05-25-85)	Y
16 Thallium	7841(05-25-85)	Y
17 Vanadium	5010(05-25-85)	Y
18 Zinc	7950(05-25-85)	Y
19 Cyanide	9010(05-25-85)	Y
20 Fluoride	340.2(05-25-85)	Y
21 Sulfide	9030(05-25-85)	Y

OTHER		
1 California Waste Extraction Test		(05-25-85) Y
2 Physical Property Testing		(05-25-85) Y
3 Aquatic Toxicity Testing		(05-25-85) Y
4 Bulk Asbestos Testing		N
5 Total Organic Lead		(07-13-82) Y
6 Total Petroleum Hydrocarbons		(11-28-82) Y

## **APPENDIX E**

### **BLANK, DUPLICATE, AND SPIKE SAMPLE ANALYTICAL REPORTS**



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

February 19, 1992

LAB No: SP 200468-5

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/0/14/1A  
Sample Description: MW-5/0/14/1A  
Sampled by : Tim Bricker  
Container : Glass TFE-Lined Cap  
Preservatives: HCl pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 10, 1992  
Analyzed : February 10, 1992  
QA/QC ID# : 920210 624-202A

### EPA METHOD 624

CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Acetone	10.0	ND	10.0	ND
Benzene	0.5	ND	0.5	ND
Bromodichloromethane	1.0	ND	1.0	ND
Bromoform	1.0	ND	1.0	ND
Bromomethane	1.0	ND	1.0	ND
Carbon Disulfide	5.0	ND	5.0	ND
Carbon Tetrachloride	1.0	ND	1.0	ND
Chlorobenzene	0.5	ND	0.5	ND
Chloroethane	1.0	ND	1.0	ND
Chloroform	0.5	ND	0.5	ND
Chloromethane	1.0	ND	1.0	ND
Dibromochloromethane	1.0	ND	1.0	ND
1,2-Dichlorobenzene	1.0	ND	1.0	ND
1,3-Dichlorobenzene	1.0	ND	1.0	ND
1,4-Dichlorobenzene	1.0	ND	1.0	ND
1,1-Dichloroethane	1.0	ND	1.0	ND
1,2-Dichloroethane	1.0	ND	1.0	ND
1,1-Dichloroethylene	1.0	ND	1.0	ND
trans-1,2-Dichloroethylene	1.0	ND	1.0	ND
1,2-Dichloropropane	1.0	ND	1.0	ND
cis-1,3-Dichloropropene	2.0	ND	2.0	ND
trans-1,3-Dichloropropene	1.0	ND	1.0	ND
Ethanol	5,000	ND	5,000	ND

Table cont'd next page ...

February 19, 1992  
Bermite Division of Whittaker

LAB No: SP 200468-5  
Description: MW-5/0/14/1A

## EPA METHOD 624 Analysis results Cont'd

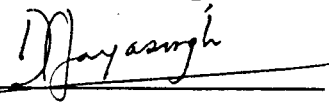
CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Ethyl Benzene	0.5	ND	0.5	ND
2-Hexanone	5.0	ND	5.0	ND
Methylene Chloride	0.5	ND	0.5	ND
2-Butanone (MEK)	10.0	ND	10.0	ND
4-Methyl-2-pentanone (MIBK)	5.0	ND	5.0	ND
Styrene	1.0	ND	1.0	ND
1,1,2,2-Tetrachloroethane	1.0	ND	1.0	ND
Tetrachloroethylene	0.5	ND	0.5	ND
Toluene	0.5	ND	0.5	ND
1,1,1-Trichloroethane	0.5	ND	0.5	ND
1,1,2-Trichloroethane	0.5	ND	0.5	ND
Trichlorethylene	1.0	ND	1.0	ND
Trichlorofluoromethane	1.5	ND	1.5	ND
Vinyl Acetate	10.0	ND	10.0	ND
Vinyl Chloride	1.0	ND	1.0	ND
Xylenes	1.0	ND	1.0	ND


SURROGATES	SAMPLE		LAB BLANK	
	AR	% REC.	AR	% REC.
1,2-Dichloroethane-d4	66-127	80	66-127	106
Toluene-d8	44-153	107	44-153	105
BFB	50-127	99	50-127	94

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR. AR = Acceptable Range

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-33

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/B/14/1A  
Sample Description: MW5/B/14/1A  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	0.8	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-33

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/C/14/1A  
Sample Description: MW5/C/14/1A  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 6, 1992  
Analyzed : February 6, 1992  
QA/QC ID# : 920206 TOX-201A

### TOX METHOD

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	7.8	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

Dudley Jayasinghe, Ph.D.  
Technical Director

for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

February 19, 1992

LAB No: SP 200468-6

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/O/14/1A  
Sample Description: MW-6/O/14/1A  
Sampled by : Tim Bricker  
Container : Glass TFE-Lined Cap  
Preservatives: HCl pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 624-202A

### EPA METHOD 624

CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Acetone	10.0	ND	10.0	ND
Benzene	0.5	ND	0.5	ND
Bromodichloromethane	1.0	ND	1.0	ND
Bromoform	1.0	ND	1.0	ND
Bromomethane	1.0	ND	1.0	ND
Carbon Disulfide	5.0	ND	5.0	ND
Carbon Tetrachloride	1.0	ND	1.0	ND
Chlorobenzene	0.5	ND	0.5	ND
Chloroethane	1.0	ND	1.0	ND
Chloroform	0.5	ND	0.5	ND
Chloromethane	1.0	ND	1.0	ND
Dibromochloromethane	1.0	ND	1.0	ND
1,2-Dichlorobenzene	1.0	ND	1.0	ND
1,3-Dichlorobenzene	1.0	ND	1.0	ND
1,4-Dichlorobenzene	1.0	ND	1.0	ND
1,1-Dichloroethane	1.0	ND	1.0	ND
1,2-Dichloroethane	1.0	ND	1.0	ND
1,1-Dichloroethylene	1.0	ND	1.0	ND
trans-1,2-Dichloroethylene	1.0	ND	1.0	ND
1,2-Dichloropropane	1.0	ND	1.0	ND
cis-1,3-Dichloropropene	2.0	ND	2.0	ND
trans-1,3-Dichloropropene	1.0	ND	1.0	ND
Ethanol	5,000	ND	5,000	ND

Table cont'd next page ...

February 19, 1992  
Bermite Division of Whittaker

LAB No: SP 200468-6  
Description: MW-6/0/14/1A

## EPA METHOD 624 Analysis results Cont'd

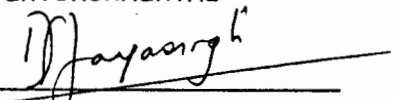
CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Ethyl Benzene	0.5	ND	0.5	ND
2-Hexanone	5.0	ND	5.0	ND
Methylene Chloride	0.5	ND	0.5	ND
2-Butanone (MEK)	10.0	ND	10.0	ND
4-Methyl-2-pentanone (MIBK)	5.0	ND	5.0	ND
Styrene	1.0	ND	1.0	ND
1,1,2,2-Tetrachloroethane	1.0	ND	1.0	ND
Tetrachloroethylene	0.5	ND	0.5	ND
Toluene	0.5	ND	0.5	ND
1,1,1-Trichloroethane	0.5	ND	0.5	ND
1,1,2-Trichloroethane	0.5	ND	0.5	ND
Trichloroethylene	1.0	ND	1.0	ND
Trichlorofluoromethane	1.5	ND	1.5	ND
Vinyl Acetate	10.0	ND	10.0	ND
Vinyl Chloride	1.0	ND	1.0	ND
Xylenes	1.0	ND	1.0	ND

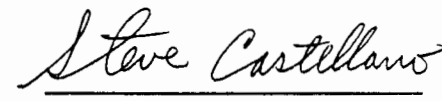
SURROGATES	SAMPLE		LAB BLANK	
	AR	% REC.	AR	% REC.
1,2-Dichloroethane-d4	66-127	123	66-127	122
Toluene-d8	44-153	81	44-153	88
BFB	50-127	85	50-127	95

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR. AR = Acceptable Range

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-34

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/B/14/1A  
Sample Description: MW6/B/14/1A  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H<sub>2</sub>SO<sub>4</sub> pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

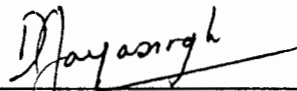
### TOC METHOD


CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-34

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/C/14/1A  
Sample Description: MW6/C/14/1A  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A


### TOX METHOD

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK	
					DLR	RESULTS
TOX	9020	5.0	ug/L	5.4	5.0	ND

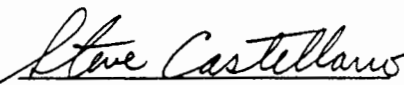
DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

mlh

  
for Darrell H. Nelson, B.S.  
Laboratory Director

**ENVIRONMENTAL****ANALYTICAL CHEMISTS**

## QA/QC DATA (LAB. NO. 201225)

<u>Constituent</u>	<u>EPA Method</u>	<u>Spike 1 % Recovery</u>	<u>Spike 2 % Recovery</u>	<u>Relative % Difference</u>	<u>QC Reference % Recovery</u>
Chloride	SM407C	100	102	2	100
Phosphate-P	356.2	100	101	0.6	101
Sulfate	375.4	110	113	1	101

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

KW/DHN:cea

Darrell H. Nelson, B.S.  
Laboratory Director


**ENVIRONMENTAL**
**ANALYTICAL CHEMISTS**
**QA/QC DATA (LAB. NO. 201226-1)**

<u>Constituent</u>	<u>EPA Method</u>	<u>Blank Result</u>	<u>Blank Spike % Recovery</u>	<u>Spike 1 % Recovery</u>	<u>Spike 2 % Recovery</u>	<u>Relative % Difference</u>	<u>QC Reference % Recovery</u>
Antimony	7041	ND	111	105	107	2.2	104
Arsenic	7060	ND	105	109	115	5.7	97
Barium	6010	ND	104	104	107	2.6	104
Cadmium	7131	ND	97	97	100	3.4	130
Chromium	7191	ND	91	88	89	1.4	104
Copper	6010	ND	99	101	102	0.5	94
Lead	7421	ND	113	108	116	6.5	101
Mercury	7470	ND	94	91	96	5.3	--
Selenium	7740	ND	86	90	93	4.0	95
Thallium	7841	ND	108	100	101	0.5	112

ND = Not Detected

 Very truly yours,  
 FGL ENVIRONMENTAL



 Kurt Wilkinson, B.S.  
 Inorganic Laboratory Manager

KW/DHN:cea

 Darrell H. Nelson, B.S.  
 Laboratory Director

**ENVIRONMENTAL****ANALYTICAL CHEMISTS**

## QA/QC DATA (LAB. NO. 201222)

<u>Constituent</u>	<u>EPA Method</u>	<u>mg/L Duplicate 1</u>	<u>mg/L Duplicate 2</u>	<u>Relative % Difference</u>	<u>QC Reference % Recovery</u>
EC	120.1	640	636	0.6	99
pH	150.1	8.9	8.9	0	99

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

KW/DHN:cea

Darrell H. Nelson, B.S.  
Laboratory Director


**ENVIRONMENTAL**
**ANALYTICAL CHEMISTS**

April 2, 1992

QA/QC ID# 920320 TOX-201A

 Bermite Division of Whittaker  
 22116 W. Soledad Can. Rd.  
 Saugus, CA 91350

RE: Organic Analysis

Extracted: March 20, 1992

Analyzed: March 20, 1992

**FGL Environmental Quality Assurance Report**
**TOX METHOD**

CONSTITUENT	CONC. SPIKED		ACCURACY % RECOVERED			PRECISION % DIFFERENCE	
			MS	MSD	AR	RPD	MAV
TOX	9020	100.0	88	83	80-120	6.0	20.0

 MS = Matrix Spike  
 AR = Acceptable Range

 MSD = Matrix Spike Duplicate  
 RPD = Relative Percent Difference.

 Matrix = Laboratory Blank Water  
 MAV = Maximum Acceptable Value

FGL ENVIRONMENTAL

 Steve Castellano  
 Quality Assurance Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

QA/QC ID# 920320 TOC-201A

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Extracted: March 20, 1992

Analyzed: March 20, 1992

### FGL Environmental Quality Assurance Report

#### TOC METHOD

CONSTITUENT	CONC. SPIKED		ACCURACY % RECOVERED			PRECISION % DIFFERENCE	
			MS	MSD	AR	RPD	MAV
TOC	415.1	10.0	99	103	80-120	3.0	20.0

MS = Matrix Spike  
AR = Acceptable Range

MSD = Matrix Spike Duplicate  
RPD = Relative Percent Difference.

Matrix = Laboratory Blank Water  
MAV = Maximum Acceptable Value

FGL ENVIRONMENTAL

Steve Castellano  
Quality Assurance Director



ENVIRONMENTAL

---

ANALYTICAL CHEMISTS

QA/QC DATA (LAB. NO. 201430)

<u>Constituent</u>	<u>EPA Method</u>	<u>mg/L Duplicate 1</u>	<u>mg/L Duplicate 2</u>	<u>Relative % Difference</u>	<u>QC Reference % Recovery</u>
EC	120.1	539	539	0	99.4
pH	150.1	7.8	7.9	0.9	100

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

KW/DHN:cea

  
for Darrell H. Nelson, B.S.  
Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

QA/QC ID# 920331 624-202A

RE: Organic Analysis

Extracted: March 31, 1992  
Analyzed: March 31, 1992

### FGL Environmental Quality Assurance Report

#### EPA METHOD 624

CONSTITUENT	CONC. SPIKED ug/L	ACCURACY % RECOVERED			PRECISION % DIFFERENCE	
		MS	MSD	AR	RPD	MAV
Benzene	10.0	101	100	53-150	0.0	19.0
Chlorobenzene	10.0	110	112	61-146	2.0	17.0
1,1-Dichloroethylene	10.0	115	124	28-160	8.0	54.0
Toluene	10.0	110	113	64-132	3.0	20.0
Trichlorethylene	10.0	107	108	61-140	0.0	20.0

MS = Matrix Spike  
AR = Acceptable Range

MSD = Matrix Spike Duplicate  
RPD = Relative Percent Difference.

Matrix = Laboratory Blank Water  
MAV = Maximum Acceptable Value

FGL ENVIRONMENTAL

Steve Castellano  
Quality Assurance Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

QA/QC ID# 920401 TOC-201A

RE: Organic Analysis

Extracted: April 1, 1992  
Analyzed: April 1, 1992

### FGL Environmental Quality Assurance Report

#### TOC METHOD

CONSTITUENT	CONC. SPIKED		ACCURACY % RECOVERED			PRECISION % DIFFERENCE	
			MS	MSD	AR	RPD	MAV
TOC	415.1	10.0	92	83	80-120	10.0	20.0

MS = Matrix Spike  
AR = Acceptable Range

MSD = Matrix Spike Duplicate  
RPD = Relative Percent Difference.

Matrix = Laboratory Blank Water  
MAV = Maximum Acceptable Value

FGL ENVIRONMENTAL

Steve Castellano  
Quality Assurance Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 3, 1992

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

QA/QC ID# 920402 TOX-201A

RE: Organic Analysis

Extracted: April 2, 1992  
Analyzed: April 2, 1992

### FGL Environmental Quality Assurance Report

#### TOX METHOD

CONSTITUENT	CONC. SPIKED		ACCURACY % RECOVERED			PRECISION % DIFFERENCE	
			MS	MSD	AR	RPD	MAV
TOX	9020	100.0	95	97	80-120	2.0	20.0

MS = Matrix Spike  
AR = Acceptable Range

MSD = Matrix Spike Duplicate  
RPD = Relative Percent Difference.

Matrix = Laboratory Blank Water  
MAV = Maximum Acceptable Value

FGL ENVIRONMENTAL

Steve Castellano  
Quality Assurance Director

## **APPENDIX F**

### **ANALYTICAL REPORTS FOR INDICATOR AND GROUND WATER QUALITY PARAMETERS**



## ANALYTICAL CHEMISTS

February 26, 1991  
Lab. No. 200461

Page 1 of 2

Bermite Division of Whittaker  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Gentlemen:

RE: WATER ANALYSES

Presenting results of analyses performed on your thirty-two (32) water samples received January 30, 1992. The samples have been described, as received, along with the data.

### DATA

Monitoring Well Samples collected by Tim Bricker 1/30/92

	EC <u>umhos/cm</u>	pH
MW2/A/1	4030	6.8
MW2/A/2	4030	6.8
MW2/A/3	4030	6.8
MW2/A/4	4030	6.8
MW3/A/14/1	651	7.5
MW3/A/14/2	648	7.4
MW3/A/14/3	647	7.4
MW3/A/14/4	644	7.5
MW4/A/14/1	548	7.6
MW4/A/14/2	546	7.3
MW4/A/14/3	547	7.7
MW4/A/14/4	550	7.6
MW6/A/14/1	534	7.6
MW6/A/14/2	534	7.6
MW6/A/14/3	535	7.6
MW6/A/14/4	537	7.6
MW7/A/1	734	7.2
MW7/A/2	726	7.2
MW7/A/3	722	7.3
MW7/A/4	729	7.3
MW8/A/1	2130	7.0
MW8/A/2	2130	7.0
MW8/A/3	2140	6.9
MW8/A/4	2130	7.0
MW9/A/1	2760	6.9
MW9/A/2	2770	6.9
MW9/A/3	2780	6.9
MW9/A/4	2760	6.9

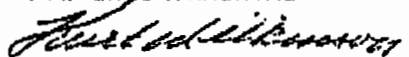
Bermite Division of Whittaker  
Lab. No. 200461

February 26, 1992  
Page 2 of 2

	EC <u>umhos/cm</u>	pH
MW10/A/14/1	624	7.8
MW10/A/14/2	623	7.8
MW10/A/14/3	627	7.7
MW10/A/14/4	627	7.8

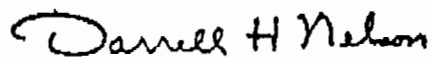
If there are questions, please call or write.

Very truly yours,  
FGL ENVIRONMENTAL



Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

DHN:cea



Darrell H. Nelson, B.S.  
Laboratory Director



ENVIRONMENTAL

## ANALYTICAL CHEMISTS

February 26, 1991  
Lab. No. 200461

Page 1 of 2

Bermite Division of Whittaker  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Gentlemen:

RE: WATER ANALYSES

Presenting results of analyses performed on your thirty-two (32) water samples received January 30, 1992. The samples have been described, as received, along with the data.

DATA

Monitoring Well Samples collected by Tim Bricker 1/30/92

	EC umhos/cm	pH
MW2/A/1	4030	6.8
MW2/A/2	4030	6.8
MW2/A/3	4030	6.8
MW2/A/4	4030	6.8
MW3/A/14/1	651	7.5
MW3/A/14/2	648	7.4
MW3/A/14/3	647	7.4
MW3/A/14/4	644	7.5
MW4/A/14/1	548	7.6
MW4/A/14/2	546	7.3
MW4/A/14/3	547	7.7
MW4/A/14/4	550	7.6
MW6/A/14/1	534	7.6
MW6/A/14/2	534	7.6
MW6/A/14/3	535	7.6
MW6/A/14/4	537	7.6
MW7/A/1	734	7.2
MW7/A/2	726	7.2
MW7/A/3	722	7.3
MW7/A/4	729	7.3
MW8/A/1	2130	7.0
MW8/A/2	2130	7.0
MW8/A/3	2140	6.9
MW8/A/4	2130	7.0
MW9/A/1	2760	6.9
MW9/A/2	2770	6.9
MW9/A/3	2780	6.9
MW9/A/4	2760	6.9

**ENVIRONMENTAL****ANALYTICAL CHEMISTS**

April 8, 1992  
Lab. No. 201222

Bermite Division of Whittaker  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Gentlemen:

RE: WATER ANALYSES

Presenting results of analyses performed on your four (4) water samples received March 13, 1992. The samples have been described, as received, along with the data.

DATA

Monitoring Well Samples collected by Tim Bricker 3/13/92

	EC <u>umhos/cm</u>	pH
MW1/A/14/1	640	7.5
MW1/A/14/2	638	7.5
MW1/A/14/3	637	7.5
MW1/A/14/4	640	7.5

If there are questions, please call or write.

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

Darrell H. Nelson, B.S.  
Laboratory Director

DHN:cea



ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 3, 1992  
Lab. No. 201430

Bermite Division of Whittaker  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Gentlemen:

RE: WATER ANALYSES

Presenting results of analyses performed on your four (4) water samples received March 26, 1992. The samples have been described, as received, along with the data.

### DATA

Monitoring Well Samples collected by Tim Bricker 3/26/92

	EC <u>umhos/cm</u>	pH
MW5/A/14/1	539	7.8
MW5/A/14/2	538	7.8
MW5/A/14/3	539	7.8
MW5/A/14/4	539	7.8

If there are questions, please call or write.

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

DHN:cea

  
for Darrell H. Nelson, B.S.  
Laboratory Director


**ENVIRONMENTAL**
**ANALYTICAL CHEMISTS**

April 2, 1992

LAB No: SP 201223-1

 Bermite Division of Whittaker  
 22116 W. Soledad Can. Rd.  
 Saugus, CA 91350

RE: Organic Analysis

 Property : MW1/B/14/1  
 Sample Description: MW1/B/14/1  
 Sampled by : Tim Bricker  
 Container : Amber Glass TFE-Cap  
 Preservatives: Cool 4°C, H2SO4 pH < 2

 Sampled : March 13, 1992  
 Received : March 13, 1992  
 Extracted : March 20, 1992  
 Analyzed : March 20, 1992  
 QA/QC ID# : 920320 TOC-201A

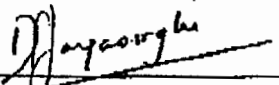
TOC METHOD

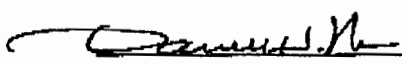
CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	0.67	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
 mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
 Dudley Jayasinghe, Ph.D.  
 Technical Director

  
 Darrell H. Nelson, B.S.  
 Laboratory Director

mlh



ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201223-2

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW1/B/14/2  
Sample Description: MW1/B/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 13, 1992  
Received : March 13, 1992  
Extracted : March 20, 1992  
Analyzed : March 20, 1992  
QA/QC ID# : 920320 TOC-201A

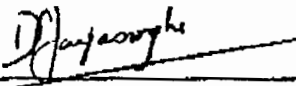
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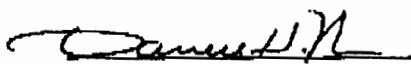
CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Budtey Jayasinghe, Ph.D.  
Technical Director

  
Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201223-3

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW1/B/14/3  
Sample Description: MW1/B/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 13, 1992  
Received : March 13, 1992  
Extracted : March 20, 1992  
Analyzed : March 20, 1992  
QA/QC ID# : 920320 TOC-201A

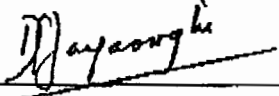
### TOC METHOD

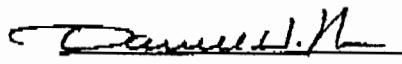
CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201223-4

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW1/B/14/4  
Sample Description: MW1/B/14/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 13, 1992  
Received : March 13, 1992  
Extracted : March 20, 1992  
Analyzed : March 20, 1992  
QA/QC ID# : 920320 TOC-201A

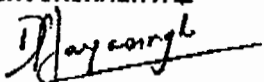
### TOC METHOD

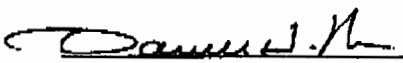
CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
Darrell H. Nelson, B.S.  
Laboratory Director

mlh

**ENVIRONMENTAL****ANALYTICAL CHEMISTS**

April 2, 1992

LAB No: SP 201224-1

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW1/C/14/1  
Sample Description: MW1/C/14/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 13, 1992  
Received : March 13, 1992  
Extracted : March 20, 1992  
Analyzed : March 20, 1992  
QA/QC ID# : 920320 TOX-201A

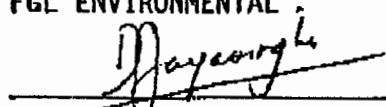
**TOX METHOD**

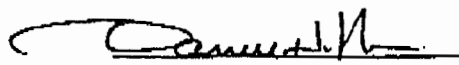
CONSTITUENT	METHOD	SAMPLE UNITS	DLR	SAMPLE RESULTS	LAB BLANK DLR	RESULTS
TOX	9020	ug/L	5.0	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201224-2

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW1/C/14/2  
Sample Description: MW1/C/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 13, 1992  
Received : March 13, 1992  
Extracted : March 20, 1992  
Analyzed : March 20, 1992  
QA/QC ID# : 920320 TOX-201A

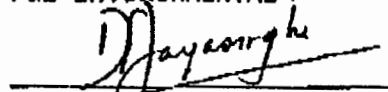
### TOX METHOD

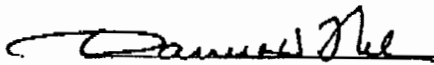
CONSTITUENT	METHOD	SAMPLE UNITS	DLR	SAMPLE RESULTS	LAB BLANK DLR	RESULTS
TOX	9020	ug/L	5.0	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
Darrell H. Nelson, B.S.  
Laboratory Director

mlh

**ENVIRONMENTAL****ANALYTICAL CHEMISTS**

April 2, 1992

LAB No: SP 201224-3

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW1/C/14/3  
Sample Description: MW1/C/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 13, 1992  
Received : March 13, 1992  
Extracted : March 20, 1992  
Analyzed : March 20, 1992  
QA/QC ID# : 920320 TOX-201A

**TOX METHOD**

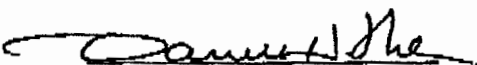
CONSTITUENT	METHOD	SAMPLE UNITS	DLR	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	ug/L	5.0	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- Indicates none determined.)

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
Darrell H. Nelson, B.S.  
Laboratory Director

mlh


**ENVIRONMENTAL**
**ANALYTICAL CHEMISTS**

April 2, 1992

LAB No: SP 201224-4

 Bermite Division of Whittaker  
 22116 W. Soledad Can. Rd.  
 Saugus, CA 91350

RE: Organic Analysis

 Property : MW1/C/14/4  
 Sample Description: MW1/C/14/4  
 Sampled by : Tim Bricker  
 Container : Amber Glass TFE-Cap  
 Preservatives: Cool 4°C, H2SO4 pH < 2

 Sampled : March 13, 1992  
 Received : March 13, 1992  
 Extracted : March 20, 1992  
 Analyzed : March 20, 1992  
 QA/QC ID# : 920320 TOX-201A

TOX METHOD

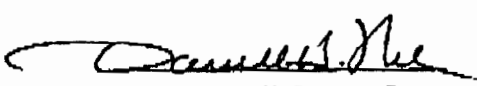
CONSTITUENT	METHOD	SAMPLE UNITS	DLR	SAMPLE RESULTS	LAB BLANK DLR	RESULTS
TOX	9020	ug/L	5.0	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
 Dudley Jayasinghe, Ph.D.  
 Technical Director

  
 Darrell H. Nelson, B.S.  
 Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-5

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW3/B/1  
Sample Description: MW3/B/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H<sub>2</sub>SO<sub>4</sub> pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

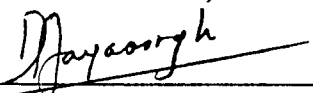
### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	0.6	0.5	ND


DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

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for Darrell H. Nelson, B.S.  
Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-6

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW3/B/2  
Sample Description: MW3/B/2  
Sampled by : Tim Bricker  
Container : Amber GlasstFE-Cap  
Perservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

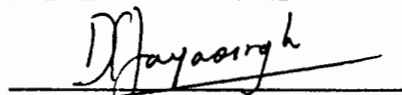
### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	0.6	0.5	ND

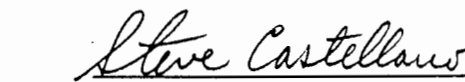
DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

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for Darrell H. Nelson, B.S.  
Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-7

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW3/B/3  
Sample Description: MW3/B/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

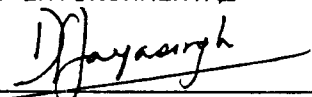
### TOC METHOD

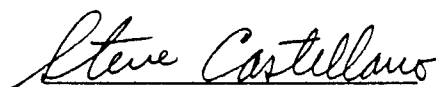
CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	0.6	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-8

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW3/B/4  
Sample Description: MW3/B/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	0.6	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

Dudley Jayasinghe, Ph.D.  
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Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-5

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW3/C/14/1  
Sample Description: MW3/C/14/1  
Sampled by : Tim Bricker  
Container : Amber GlasstFE-Cap  
Perservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

### TOX METHOD


CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
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Technical Director

  
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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-6

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW3/C/14/2  
Sample Description: MW3/C/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

### TOX METHOD

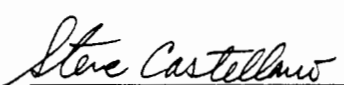
CONSTITUENT	METHOD	SAMPLE	UNITS	SAMPLE	LAB BLANK	
		DLR		RESULTS	DLR	RESULTS
TOX	9020	5.0	ug/L	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-7

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW3/C/14/3  
Sample Description: MW3/C/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

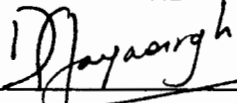
### TOX METHOD


CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	5.8	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-8

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW3/C/14/4  
Sample Description: MW3/C/14/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H<sub>2</sub>SO<sub>4</sub> pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

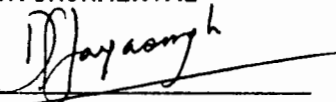
### TOX METHOD

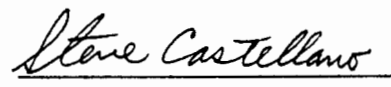
CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-9

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/B/14/1  
Sample Description: MW4/B/14/1  
Sampled by : Tim Bricker  
Container : Amber GlasstFE-Cap  
Perservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

Dudley Jayasinghe, Ph.D.  
Technical Director

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for Darrell H. Nelson, B.S.  
Laboratory Director



## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-10

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/B/14/2  
Sample Description: MW4/B/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H<sub>2</sub>SO<sub>4</sub> pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

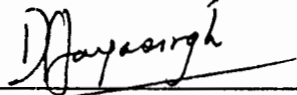
### TOC METHOD

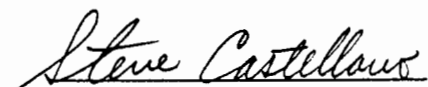
CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
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for Darrell H. Nelson, B.S.  
Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-11

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/B/14/3  
Sample Description: MW4/B/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

### TOC METHOD


CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-12

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/B/14/4  
Sample Description: MW4/B/14/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

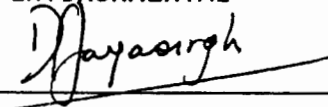
### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

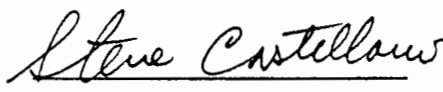
DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
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Technical Director

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for Darrell H. Nelson, B.S.  
Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-9

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/C/14/1  
Sample Description: MW4/C/14/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

### TOX METHOD

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK	
					DLR	RESULTS
TOX	9020	5.0	ug/L	57.8	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

Dudley Jayasinghe, Ph.D.  
Technical Director

for Darrell H. Nelson, B.S.  
Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-10

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/C/14/2  
Sample Description: MW4/C/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

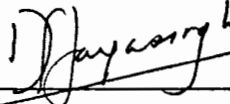
### TOX METHOD

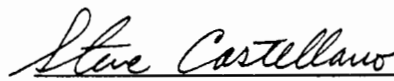
CONSTITUENT	METHOD	SAMPLE	UNITS	SAMPLE	LAB BLANK	
		DLR		RESULTS	DLR	RESULTS
TOX	9020	5.0	ug/L	76.1	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
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for Darrell H. Nelson, B.S.  
Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-11

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/C/14/3  
Sample Description: MW4/C/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

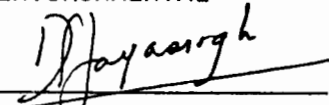
### TOX METHOD

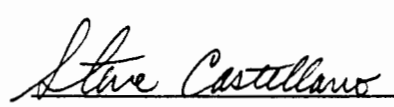
CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	68.8	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL ,

  
Dudley Jayasinghe, Ph.D.  
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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-12

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/C/14/4  
Sample Description: MW4/C/14/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

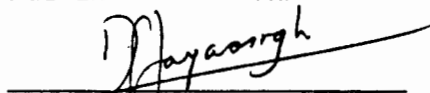
### TOX METHOD

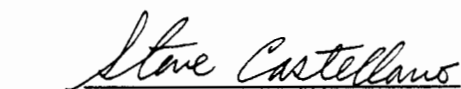
CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	74.4	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201431-1

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/B/14/1  
Sample Description: MW5/B/14/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : April 1, 1992  
Analyzed : April 1, 1992  
QA/QC ID# : 920401 TOC-201A

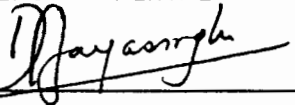
### TOC METHOD

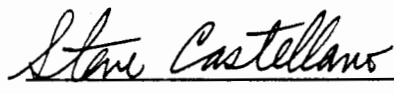
CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201431-2

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/B/14/2  
Sample Description: MW5/B/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : April 1, 1992  
Analyzed : April 1, 1992  
QA/QC ID# : 920401 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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Dudley Jayasinghe, Ph.D.  
Technical Director

for Darrell H. Nelson, B.S.  
Laboratory Director

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201431-3

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/B/14/3  
Sample Description: MW5/B/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : April 1, 1992  
Analyzed : April 1, 1992  
QA/QC ID# : 920401 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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Laboratory Director



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## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201431-4

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/B/14/4  
Sample Description: MW5/B/14/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : April 1, 1992  
Analyzed : April 1, 1992  
QA/QC ID# : 920401 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 3, 1992

LAB No: SP 201432-1

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/C/14/1  
Sample Description: MW5/C/14/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : April 2, 1992  
Analyzed : April 2, 1992  
QA/QC ID# : 920402 TOX-201A

### TOX METHOD

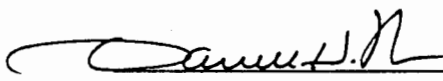
CONSTITUENT	METHOD	SAMPLE UNITS	DLR	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	ug/L	5.0	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 3, 1992

LAB No: SP 201432-2

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/C/14/2  
Sample Description: MW5/C/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : April 2, 1992  
Analyzed : April 2, 1992  
QA/QC ID# : 920402 TOX-201A

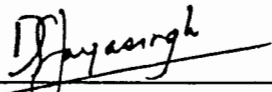
### TOX METHOD

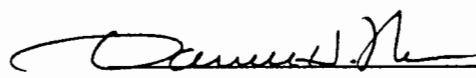
CONSTITUENT	METHOD	SAMPLE UNITS	DLR	SAMPLE RESULTS	LAB BLANK DLR	RESULTS
TOX	9020	ug/L	5.0	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 3, 1992

LAB No: SP 201432-3

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/C/14/3  
Sample Description: MW5/C/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : April 2, 1992  
Analyzed : April 2, 1992  
QA/QC ID# : 920402 TOX-201A

### TOX METHOD

CONSTITUENT	METHOD	SAMPLE UNITS	DLR	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	ug/L	5.0	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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## ANALYTICAL CHEMISTS

April 3, 1992

LAB No: SP 201432-4

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/C/14/4  
Sample Description: MW5/C/14/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: Cool 4°C, H2SO4 pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : April 2, 1992  
Analyzed : April 2, 1992  
QA/QC ID# : 920402 TOX-201A

### TOX METHOD

CONSTITUENT	METHOD	SAMPLE UNITS	DLR	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	ug/L	5.0	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-13

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/B/14/1  
Sample Description: MW6/B/14/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

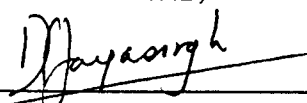
### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND


DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL,

  
Dudley Jayasinghe, Ph.D.  
Technical Director

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for Darrell H. Nelson, B.S.  
Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-14

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/B/14/2  
Sample Description: MW6/B/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	0.9	0.5	ND


DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-15

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/B/14/3  
Sample Description: MW6/B/14/3  
Sampled by : Tim Bricker  
Container : Amber GlasstFE-Cap  
Perservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

Dudley Jayasinghe, Ph.D.  
Technical Director

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Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-16

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/B/14/4  
Sample Description: MW6/B/14/4  
Sampled by : Tim Bricker  
Container : Amber GlasstFE-Cap  
Perservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

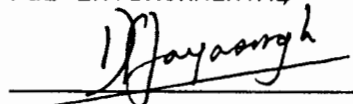
### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

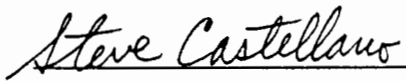
DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
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Darrell H. Nelson, B.S.  
Laboratory Director

**ANALYTICAL CHEMISTS**

March 2, 1992

LAB No: SP 200471-13

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/C/14/1  
Sample Description: MW6/C/14/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

**TOX METHOD**

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	9.8	5.0	ND


DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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for Darrell H. Nelson, B.S.  
Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-14

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/C/14/2  
Sample Description: MW6/C/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

### TOX METHOD

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	8.1	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

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Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-15

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/C/14/3  
Sample Description: MW6/C/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

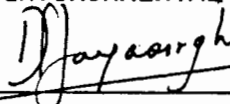
### TOX METHOD

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	11.1	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
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Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-16

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/C/14/4  
Sample Description: MW6/C/14/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 5, 1992  
Analyzed : February 5, 1992  
QA/QC ID# : 920205 TOX-201A

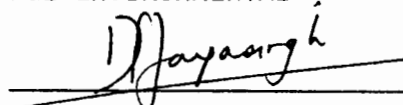
### TOX METHOD

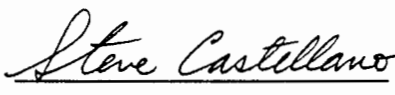
CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	12.9	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
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For Darrell H. Nelson, B.S.  
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## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-29

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/B/1  
Sample Description: MW10/B/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

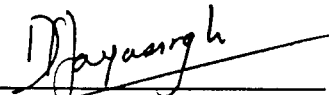
### TOC METHOD

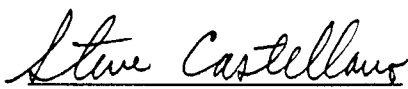
CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-30

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/B/2  
Sample Description: MW10/B/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

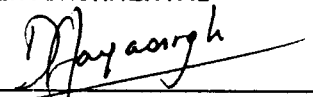
### TOC METHOD


CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
For Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-31

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/B/3  
Sample Description: MW10/B/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

### TOC METHOD

CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL ,

Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200470-32

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/B/4  
Sample Description: MW10/B/4  
Sampled by : Tim Bricker  
Container : Amber GlassTFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 TOC-201A

### TOC METHOD


CONSTITUENT	METHOD	UNITS	SAMPLE		LAB BLANK	
			DLR	RESULTS	DLR	RESULTS
TOC	415.1	mg/L	0.5	ND	0.5	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
mg/L = Milligrams Per Liter (ppm) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-29

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/C/14/1  
Sample Description: MW10/C/14/1  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 6, 1992  
Analyzed : February 6, 1992  
QA/QC ID# : 920206 TOX-201A

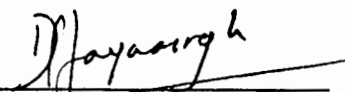
### TOX METHOD

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	ND	5.0	ND


DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

mlh

  
for Darrell H. Nelson, B.S.  
Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-30

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/C/14/2  
Sample Description: MW10/C/14/2  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 6, 1992  
Analyzed : February 6, 1992  
QA/QC ID# : 920206 TOX-201A

### TOX METHOD

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

Dudley Jayasinghe, Ph.D.  
Technical Director

for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-31

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/C/14/3  
Sample Description: MW10/C/14/3  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 6, 1992  
Analyzed : February 6, 1992  
QA/QC ID# : 920206 TOX-201A

### TOX METHOD

CONSTITUENT	METHOD	SAMPLE DLR	UNITS	SAMPLE RESULTS	LAB BLANK DLR	LAB BLANK RESULTS
TOX	9020	5.0	ug/L	ND	5.0	ND

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

Dudley Jayasinghe, Ph.D.  
Technical Director

mlh

for Darrell H. Nelson, B.S.  
Laboratory Director



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

March 2, 1992

LAB No: SP 200471-32

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/C/14/4  
Sample Description: MW10/C/14/4  
Sampled by : Tim Bricker  
Container : Amber Glass TFE-Cap  
Preservatives: H2SO4 pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 6, 1992  
Analyzed : February 6, 1992  
QA/QC ID# : 920206 TOX-201A

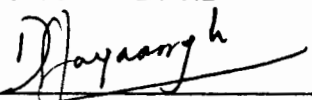
### TOX METHOD

CONSTITUENT	METHOD	SAMPLE	UNITS	SAMPLE	LAB BLANK	
		DLR		RESULTS	DLR	RESULTS
TOX	9020	5.0	ug/L	ND	5.0	ND

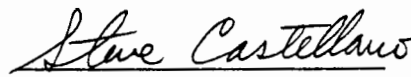
DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

mlh

  
for Darrell H. Nelson, B.S.  
Laboratory Director

**ENVIRONMENTAL****ANALYTICAL CHEMISTS**

April 8, 1992  
Lab. No. 201226-1

Bermite Division of Whittaker  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Gentlemen:

RE: WATER ANALYSIS

Presenting results of analysis performed on your water sample received March 13, 1992. The sample has been described, as received, along with the data.

DATA

Monitoring Well Sample collected by Tim Bricker 3/13/92

MW1/K/14

Antimony, ug/L	<100
Arsenic, ug/L	<50
Barium, ug/L	70
Cadmium, ug/L	<10
Chromium, ug/L	<50
Copper, ug/L	<100
Lead, ug/L	<50
Mercury, ug/L	<1
Selenium, ug/L	<10
Thallium, ug/L	<100

If there are questions, please call or write.

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

DHN:cea

Darrell H. Nelson, B.S.  
Laboratory Director



## ANALYTICAL CHEMISTS

February 26, 1992  
Lab. No. 200465

Bermite Division of Whittaker  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Gentlemen:

RE: WATER ANALYSIS

Presenting results of analyses performed on your five (5) water samples received January 30, 1992. The samples have been described, as received, along with the data.

DATA

Monitoring Well Samples collected by Tim Bricker 1/30/92

	<u>MW2/H.I.N</u>	<u>MW7/H.I.N</u>	<u>MW8/H.I.N</u>	<u>MW9/H.I.N</u>	<u>MW3/H/14</u>
Iron, mg/L	<0.05	<0.05	0.13	0.16	--
Manganese, mg/L	<0.03	<0.03	0.03	0.04	--
Sodium, mg/L	86	40	76	70	--
Fluoride, mg/L	0.1	0.2	0.2	0.1	--
Nitrate, mg/L	3	4	7	6	--
Phosphorus, mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate, mg/L	14	18	17	17	85
Chloride, mg/L	--	--	--	--	33

If there are questions, please call or write.

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

KW/DHN:cea

Darrell H. Nelson, B.S.  
Laboratory Director

**ENVIRONMENTAL****ANALYTICAL CHEMISTS**

April 3, 1992  
Lab. No. 201225

Bermite Division of Whittaker  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Gentlemen:

RE: WATER ANALYSIS

Presenting results of analysis performed on your water sample received March 13, 1992. The samples have been described, as received, along with the data.

DATA

Monitoring Well Samples collected by Tim Bricker 3/13/92

MW1/H.I/14

Chloride, mg/L	131
Phosphate-P, mg/L	<0.1
Sulfate, mg/L	13

If there are questions, please call or write.

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

DHN:cea

Darrell H. Nelson, B.S.  
Laboratory Director



## ANALYTICAL CHEMISTS

February 26, 1992  
Lab. No. 200467

Bermite Division of Whittaker  
22116 W. Soledad Canyon Road  
Saugus, CA 91350

Gentlemen:

RE: WATER ANALYSIS - DISSOLVED METALS BY ICP

Presenting results of analyses performed on your five (5) water samples received January 30, 1992. The samples have been described, as received, along with the data.

### DATA

Monitoring Well Samples collected by Tim Bricker 1/30/92

	<u>MW2/K.M</u>	<u>MW7/K.M</u>	<u>MW8/K.M</u>	<u>MW9/K.M</u>	<u>MW3/K/14</u>
Antimony, ug/L	<100	<100	<100	<100	<100
Arsenic, ug/L	<50	<50	<50	<50	<50
Barium, ug/L	550	100	340	<100	320
Cadmium, ug/L	<10	<10	<10	<10	<10
Chromium, ug/L	<50	<50	<50	<50	<50
Copper, ug/L	<100	<100	<100	<100	<100
Lead, ug/L	<50	<50	<50	<50	<50
Mercury, ug/L	<1	<1	<1	<1	<1
Selenium, ug/L	<10	<10	<10	<10	<10
Silver, ug/L	<10	<10	<10	<10	<10
Thallium, ug/L	<100	<100	<100	<100	<100

If there are questions, please call or write.

Very truly yours,  
FGL ENVIRONMENTAL

Kurt Wilkinson, B.S.  
Inorganic Laboratory Manager

KW/DHN:cea

Darrell H. Nelson, B.S.  
Laboratory Director

## **APPENDIX G**

### **ANALYTICAL REPORTS FOR HAZARDOUS CONSTITUENT PARAMETERS**



## ANALYTICAL CHEMISTS

February 19, 1992

LAB No: SP 200468-7

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW4/O/14  
Sample Description: MW-4/O/14  
Sampled by : Tim Bricker  
Container : Glass TFE-Lined Cap  
Preservatives: HCl pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 624-202A

### EPA METHOD 624

CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Acetone	100	ND	10.0	ND
Benzene	5.0	ND	0.5	ND
Bromodichloromethane	10	ND	1.0	ND
Bromoform	10	ND	1.0	ND
Bromomethane	10	ND	1.0	ND
Carbon Disulfide	50	ND	5.0	ND
Carbon Tetrachloride	10	ND	1.0	ND
Chlorobenzene	5.0	ND	0.5	ND
Chloroethane	10	ND	1.0	ND
Chloroform	5.0	ND	0.5	ND
Chloromethane	10	ND	1.0	ND
Dibromochloromethane	10	ND	1.0	ND
1,2-Dichlorobenzene	10	ND	1.0	ND
1,3-Dichlorobenzene	10	ND	1.0	ND
1,4-Dichlorobenzene	10	ND	1.0	ND
1,1-Dichloroethane	10	ND	1.0	ND
1,2-Dichloroethane	10	ND	1.0	ND
1,1-Dichloroethylene	10	ND	1.0	ND
trans-1,2-Dichloroethylene	10	ND	1.0	ND
1,2-Dichloropropane	10	ND	1.0	ND
cis-1,3-Dichloropropene	20	ND	2.0	ND
trans-1,3-Dichloropropene	10	ND	1.0	ND
Ethanol	50000	ND	5,000	ND

Table cont'd next page ...

February 19, 1992  
Bermite Division of Whittaker

LAB No: SP 200468-7  
Description: MW-4/0/14

## EPA METHOD 624 Analysis results Cont'd

CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Ethyl Benzene	5.0	ND	0.5	ND
2-Hexanone	50	ND	5.0	ND
Methylene Chloride	5.0	ND	0.5	ND
2-Butanone (MEK)	100	ND	10.0	ND
4-Methyl-2-pentanone (MIBK)	50	ND	5.0	ND
Styrene	10	ND	1.0	ND
1,1,2,2-Tetrachloroethane	10	ND	1.0	ND
Tetrachloroethylene	5.0	ND	0.5	ND
Toluene	5.0	ND	0.5	ND
1,1,1-Trichloroethane	5.0	ND	0.5	ND
1,1,2-Trichloroethane	5.0	ND	0.5	ND
Trichlorethylene	10	83	1.0	ND
Trichlorofluoromethane	15	ND	1.5	ND
Vinyl Acetate	100	ND	10.0	ND
Vinyl Chloride	10	ND	1.0	ND
Xylenes	10	ND	1.0	ND

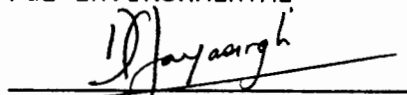
SURROGATES	SAMPLE		LAB BLANK	
	AR	% REC.	AR	% REC.
1,2-Dichloroethane-d4	66-127	108	66-127	122
Toluene-d8	44-153	87	44-153	88
BFB	50-127	103	50-127	95

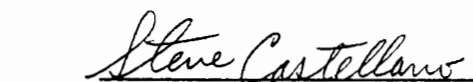
DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR. AR = Acceptable Range

The normal method detection limit has been increased to reflect the fact that a dilution of 10x was required to achieve quantifiable analytical results.

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

April 2, 1992

LAB No: SP 201433-1

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW5/O/14  
Sample Description: MW5/O/14  
Sampled by : Tim Bricker  
Container : Glass TFE-Lined Cap  
Preservatives: Cool 4°C, HCl pH < 2

Sampled : March 26, 1992  
Received : March 26, 1992  
Extracted : March 31, 1992  
Analyzed : March 31, 1992  
QA/QC ID# : 920331 624-202A

### EPA METHOD 624

CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Acetone	10.0	ND	10.0	ND
Benzene	0.5	ND	0.5	ND
Bromodichloromethane	1.0	ND	1.0	ND
Bromoform	1.0	ND	1.0	ND
Bromomethane	1.0	ND	1.0	ND
Carbon Disulfide	5.0	ND	5.0	ND
Carbon Tetrachloride	1.0	ND	1.0	ND
Chlorobenzene	0.5	ND	0.5	ND
Chloroethane	1.0	ND	1.0	ND
Chloroform	0.5	ND	0.5	ND
Chloromethane	1.0	ND	1.0	ND
Dibromochloromethane	1.0	ND	1.0	ND
1,2-Dichlorobenzene	1.0	ND	1.0	ND
1,3-Dichlorobenzene	1.0	ND	1.0	ND
1,4-Dichlorobenzene	1.0	ND	1.0	ND
1,1-Dichloroethane	1.0	ND	1.0	ND
1,2-Dichloroethane	1.0	ND	1.0	ND
1,1-Dichloroethylene	1.0	ND	1.0	ND
trans-1,2-Dichloroethylene	1.0	ND	1.0	ND
1,2-Dichloropropane	1.0	ND	1.0	ND
cis-1,3-Dichloropropene	2.0	ND	2.0	ND
trans-1,3-Dichloropropene	1.0	ND	1.0	ND
Ethanol	5,000	ND	5,000	ND

Table cont'd next page ...

April 2, 1992  
Bermite Division of Whittaker

LAB No: SP 201433-1  
Description: MW5/O/14

## EPA METHOD 624 Analysis results Cont'd

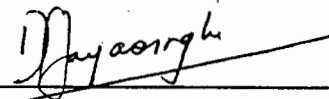
CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Ethyl Benzene	0.5	ND	0.5	ND
2-Hexanone	5.0	ND	5.0	ND
Methylene Chloride	0.5	ND	0.5	ND
2-Butanone (MEK)	10.0	ND	10.0	ND
4-Methyl-2-pentanone (MIBK)	5.0	ND	5.0	ND
Styrene	1.0	ND	1.0	ND
1,1,2,2-Tetrachloroethane	1.0	ND	1.0	ND
Tetrachloroethylene	0.5	ND	0.5	ND
Toluene	0.5	ND	0.5	ND
1,1,1-Trichloroethane	0.5	ND	0.5	ND
1,1,2-Trichloroethane	0.5	ND	0.5	ND
Trichlorethylene	1.0	ND	1.0	ND
Trichlorofluoromethane	1.5	ND	1.5	ND
Vinyl Acetate	10.0	ND	10.0	ND
Vinyl Chloride	1.0	ND	1.0	ND
Xylenes	1.0	ND	1.0	ND


SURROGATES	SAMPLE		LAB BLANK	
	AR	% REC.	AR	% REC.
1,2-Dichloroethane-d4	66-127	115	66-127	95
Toluene-d8	44-153	80	44-153	79
BFB	50-127	103	50-127	104

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR. AR = Acceptable Range

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh



## ANALYTICAL CHEMISTS

February 19, 1992

LAB No: SP 200468-8

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW6/0/14  
Sample Description: MW-6/0/14  
Sampled by : Tim Bricker  
Container : Glass TFE-Lined Cap  
Preservatives: HCl pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 624-202A

### EPA METHOD 624

CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Acetone	10.0	ND	10.0	ND
Benzene	0.5	ND	0.5	ND
Bromodichloromethane	1.0	ND	1.0	ND
Bromoform	1.0	ND	1.0	ND
Bromomethane	1.0	ND	1.0	ND
Carbon Disulfide	5.0	ND	5.0	ND
Carbon Tetrachloride	1.0	ND	1.0	ND
Chlorobenzene	0.5	ND	0.5	ND
Chloroethane	1.0	ND	1.0	ND
Chloroform	0.5	ND	0.5	ND
Chloromethane	1.0	ND	1.0	ND
Dibromochloromethane	1.0	ND	1.0	ND
1,2-Dichlorobenzene	1.0	ND	1.0	ND
1,3-Dichlorobenzene	1.0	ND	1.0	ND
1,4-Dichlorobenzene	1.0	ND	1.0	ND
1,1-Dichloroethane	1.0	ND	1.0	ND
1,2-Dichloroethane	1.0	ND	1.0	ND
1,1-Dichloroethylene	1.0	ND	1.0	ND
trans-1,2-Dichloroethylene	1.0	ND	1.0	ND
1,2-Dichloropropane	1.0	ND	1.0	ND
cis-1,3-Dichloropropene	2.0	ND	2.0	ND
trans-1,3-Dichloropropene	1.0	ND	1.0	ND
Ethanol	5,000	ND	5,000	ND

Table cont'd next page ...

February 19, 1992  
Bermite Division of Whittaker

LAB No: SP 200468-8  
Description: MW-6/0/14

## EPA METHOD 624 Analysis results Cont'd

CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Ethyl Benzene	0.5	ND	0.5	ND
2-Hexanone	5.0	ND	5.0	ND
Methylene Chloride	0.5	ND	0.5	ND
2-Butanone (MEK)	10.0	ND	10.0	ND
4-Methyl-2-pentanone (MIBK)	5.0	ND	5.0	ND
Styrene	1.0	ND	1.0	ND
1,1,2,2-Tetrachloroethane	1.0	ND	1.0	ND
Tetrachloroethylene	0.5	ND	0.5	ND
Toluene	0.5	ND	0.5	ND
1,1,1-Trichloroethane	0.5	ND	0.5	ND
1,1,2-Trichloroethane	0.5	ND	0.5	ND
Trichlorethylene	1.0	ND	1.0	ND
Trichlorofluoromethane	1.5	ND	1.5	ND
Vinyl Acetate	10.0	ND	10.0	ND
Vinyl Chloride	1.0	ND	1.0	ND
Xylenes	1.0	ND	1.0	ND


SURROGATES	SAMPLE		LAB BLANK	
	AR	% REC.	AR	% REC.
1,2-Dichloroethane-d4	66-127	117	66-127	122
Toluene-d8	44-153	87	44-153	88
BFB	50-127	92	50-127	95

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR. AR = Acceptable Range

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

m1h



# ENVIRONMENTAL

## ANALYTICAL CHEMISTS

February 19, 1992

LAB No: SP 200468-9

Bermite Division of Whittaker  
22116 W. Soledad Can. Rd.  
Saugus, CA 91350

RE: Organic Analysis

Property : MW10/0/14  
Sample Description: MW10/0/14  
Sampled by : Tim Bricker  
Container : Glass TFE-Lined Cap  
Preservatives: HCl pH < 2, Cool 4°C

Sampled : January 30, 1992  
Received : January 30, 1992  
Extracted : February 11, 1992  
Analyzed : February 11, 1992  
QA/QC ID# : 920211 624-202A

### EPA METHOD 624

CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Acetone	10.0	ND	10.0	ND
Benzene	0.5	ND	0.5	ND
Bromodichloromethane	1.0	ND	1.0	ND
Bromoform	1.0	ND	1.0	ND
Bromomethane	1.0	ND	1.0	ND
Carbon Disulfide	5.0	ND	5.0	ND
Carbon Tetrachloride	1.0	ND	1.0	ND
Chlorobenzene	0.5	ND	0.5	ND
Chloroethane	1.0	ND	1.0	ND
Chloroform	0.5	ND	0.5	ND
Chloromethane	1.0	ND	1.0	ND
Dibromochloromethane	1.0	ND	1.0	ND
1,2-Dichlorobenzene	1.0	ND	1.0	ND
1,3-Dichlorobenzene	1.0	ND	1.0	ND
1,4-Dichlorobenzene	1.0	ND	1.0	ND
1,1-Dichloroethane	1.0	ND	1.0	ND
1,2-Dichloroethane	1.0	ND	1.0	ND
1,1-Dichloroethylene	1.0	ND	1.0	ND
trans-1,2-Dichloroethylene	1.0	ND	1.0	ND
1,2-Dichloropropane	1.0	ND	1.0	ND
cis-1,3-Dichloropropene	2.0	ND	2.0	ND
trans-1,3-Dichloropropene	1.0	ND	1.0	ND
Ethanol	5,000	ND	5,000	ND

Table cont'd next page ...

February 19, 1992  
Bermite Division of Whittaker

LAB No: SP 200468-9  
Description: MW10/0/14

## EPA METHOD 624 Analysis results Cont'd

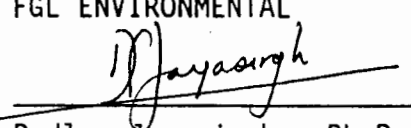
CONSTITUENT	SAMPLE		LAB BLANK	
	DLR ug/L	RESULTS ug/L	DLR ug/L	RESULTS ug/L
Ethyl Benzene	0.5	ND	0.5	ND
2-Hexanone	5.0	ND	5.0	ND
Methylene Chloride	0.5	ND	0.5	ND
2-Butanone (MEK)	10.0	ND	10.0	ND
4-Methyl-2-pentanone (MIBK)	5.0	ND	5.0	ND
Styrene	1.0	ND	1.0	ND
1,1,2,2-Tetrachloroethane	1.0	ND	1.0	ND
Tetrachloroethylene	0.5	ND	0.5	ND
Toluene	0.5	ND	0.5	ND
1,1,1-Trichloroethane	0.5	ND	0.5	ND
1,1,2-Trichloroethane	0.5	ND	0.5	ND
Trichlorethylene	1.0	ND	1.0	ND
Trichlorofluoromethane	1.5	ND	1.5	ND
Vinyl Acetate	10.0	ND	10.0	ND
Vinyl Chloride	1.0	ND	1.0	ND
Xylenes	1.0	ND	1.0	ND

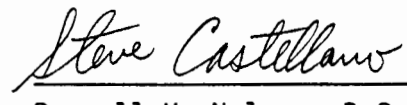
SURROGATES	SAMPLE		LAB BLANK	
	AR	% REC.	AR	% REC.
1,2-Dichloroethane-d4	66-127	109	66-127	122
Toluene-d8	44-153	100	44-153	88
BFB	50-127	96	50-127	95

DLR = Detection Limit for Reporting Purposes. MCL = Maximum Contaminant Level (--- indicates none determined.)  
ug/L = Micrograms Per Liter (ppb) ND = Not Detected at or above the DLR. AR = Acceptable Range

See attached report for QA/QC data. If you have any questions please call.

FGL ENVIRONMENTAL

  
Dudley Jayasinghe, Ph.D.  
Technical Director

  
for Darrell H. Nelson, B.S.  
Laboratory Director

mlh

**APPENDIX H**  
**STATISTICAL ANALYSES**

TABLE H-1, Page 1

REPLICATE STATISTICS FOR FOURTEENTH QUARTER  
 RCRA GROUNDWATER SAMPLING AND ANALYSIS  
 Area 317, Bermite Division, Whittaker Corporation

Well	Date	pH	Hydrogen Ion Conc	Conductance (umhos/cm)	TOC (mg/l)	TOX (ug/l)
Detection Limit					0.5	5
MW-1	03/13/92	7.5	3.16E-08	640	0.67	2.5
MW-1	03/13/92	7.5	3.16E-08	638	0.25	2.5
MW-1	03/13/92	7.5	3.16E-08	637	0.25	2.5
MW-1	03/13/92	7.5	3.16E-08	640	0.25	2.5
Population Size		4	4	4	4	4
Mean		7.500	3.16E-08	638.750	0.355	2.500
Standard Deviation		0.000	0.00E+00	1.500	0.210	0.000
Variance		0.000	0.00E+00	2.250	0.044	0.000
Coeff. Variance		0.000	0.00E+00	0.235	59.155	0.000
MW-3	01/30/92	7.5	3.16E-08	651	0.6	2.5
MW-3	01/30/92	7.4	3.98E-08	648	0.6	2.5
MW-3	01/30/92	7.4	3.98E-08	647	0.6	5.8
MW-3	01/30/92	7.5	3.16E-08	644	0.6	2.5
Population Size		4	4	4	4	4
Mean		7.450	3.57E-08	647.500	0.600	3.325
Standard Deviation		0.058	4.73E-09	2.887	0.000	1.650
Variance		0.003	2.23E-17	8.333	0.000	2.723
Coeff. Variance		0.775	1.32E+01	0.446	0.000	49.624
MW-4	01/30/92	7.6	2.51E-08	548	0.25	57.8
MW-4	01/30/92	7.3	5.01E-08	546	0.25	76.1
MW-4	01/30/92	7.7	2.00E-08	547	0.25	68.8
MW-4	01/30/92	7.6	2.51E-08	550	0.25	74.4
Population Size		4	4	4	4	4
Mean		7.550	3.01E-08	547.750	0.250	69.275
Standard Deviation		0.173	1.36E-08	1.708	0.000	8.261
Variance		0.030	1.84E-16	2.917	0.000	68.249
Coeff. Variance		2.294	4.52E+01	0.312	0.000	11.925

TABLE H-1, Page 2

REPLICATE STATISTICS FOR FOURTEENTH QUARTER  
 RCRA GROUNDWATER SAMPLING AND ANALYSIS  
 Area 317, Bermite Division, Whittaker Corporation

Well	Date	pH	Hydrogen Ion Conc	Conductance (umhos/cm)	TOC (mg/l)	TOX (ug/l)
Detection Limit					0.5	5
MW-5	03/26/92	7.8	1.58E-08	539	0.25	2.5
MW-5	03/26/92	7.8	1.58E-08	538	0.25	2.5
MW-5	03/26/92	7.8	1.58E-08	539	0.25	2.5
MW-5	03/26/92	7.8	1.58E-08	539	0.25	2.5
Population Size		4	4	4	4	4
Mean		7.800	1.58E-08	538.750	0.250	2.500
Standard Deviation		0.000	0.00E+00	0.500	0.000	0.000
Variance		0.000	0.00E+00	0.250	0.000	0.000
Coeff. Variance		0.000	0.00E+00	0.093	0.000	0.000
MW-6	01/30/92	7.6	2.51E-08	534	0.25	9.8
MW-6	01/30/92	7.6	2.51E-08	534	0.9	8.1
MW-6	01/30/92	7.6	2.51E-08	535	0.25	11.1
MW-6	01/30/92	7.6	2.51E-08	537	0.25	12.9
Population Size		4	4	4	4	4
Mean		7.600	2.51E-08	535.000	0.413	10.475
Standard Deviation		0.000	0.00E+00	1.414	0.325	2.030
Variance		0.000	0.00E+00	2.000	0.106	4.123
Coeff. Variance		0.000	0.00E+00	0.264	78.788	19.383
MW-10	01/30/92	7.8	1.58E-08	624	0.25	2.5
MW-10	01/30/92	7.8	1.58E-08	623	0.25	2.5
MW-10	01/30/92	7.7	2.00E-08	627	0.25	2.5
MW-10	01/30/92	7.8	1.58E-08	627	0.25	2.5
Population Size		4	4	4	4	4
Mean		7.775	1.69E-08	625.250	0.250	2.500
Standard Deviation		0.050	2.05E-09	2.062	0.000	0.000
Variance		0.002	4.21E-18	4.250	0.000	0.000
Coeff. Variance		0.643	1.22E+01	0.330	0.000	0.000

Note: All results reported as non-detected have been given a value equal to one-half the detection limit for purposes of statistical calculations, as recommended on page 122 of the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986.

TABLE H-2

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
TOTAL ORGANIC CARBON (TOC)  
Bermite Division, Whittaker Corporation

Well	Quarter	Number of Replicates	Mean	Standard Deviation	Variance	Coeff. of Variance
MW-1	1	4	1.5	0.000	0.000	0.000
	2	4	2.4	1.516	2.297	63.812
	3	4	1.5	0.000	0.000	0.000
	4	4	2.4	1.516	2.297	63.812
	5	4	1.5	0.000	0.000	0.000
	6	4	1.5	0.000	0.000	0.000
	7	4	2.0	0.000	0.000	0.000
	8	4	2.0	0.000	0.000	0.000
	9	4	0.5	0.000	0.000	0.000
	10	4	1.4	0.058	0.003	4.277
	11	4	1.8	1.053	1.109	57.708
	12	4	1.2	0.096	0.009	7.816
	13	0				
	14	4	0.36	0.210	0.044	59.155
MW-3	1	4	1.5	0.000	0.000	0.000
	2	4	1.5	0.000	0.000	0.000
	3	4	1.5	0.000	0.000	0.000
	4	4	1.5	0.000	0.000	0.000
	5	4	1.5	0.000	0.000	0.000
	6	4	7.1	3.471	12.047	48.714
	7	4	2.0	0.000	0.000	0.000
	8	4	2.0	0.000	0.000	0.000
	9	4	0.7	0.350	0.122	51.852
	10	4	2.2	0.263	0.069	12.092
	11	4	2.0	1.053	1.109	52.008
	12	4	1.3	0.126	0.016	9.869
	13	4	0.25	0.000	0.000	0.000
	14	4	0.6	0.000	0.000	0.000
MW-4	1	4	1.5	0.000	0.000	0.000
	2	4	1.5	0.000	0.000	0.000
	3	4	2.1	1.083	1.172	50.943
	4	4	3.8	2.658	7.063	70.868
	5	4	1.5	0.000	0.000	0.000
	6	4	6.8	1.639	2.688	24.287
	7	4	2.0	0.000	0.000	0.000
	8	4	2.0	0.000	0.000	0.000
	9	4	0.5	0.000	0.000	0.000
	10	4	2.1	0.294	0.087	14.019
	11	4	1.7	0.868	0.753	51.056
	12	4	1.5	0.050	0.003	3.390
	13	4	0.25	0.000	0.000	0.000
	14	4	0.25	0.000	0.000	0.000

TABLE H-2, PAGE 2

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
TOTAL ORGANIC CARBON (TOC)  
Bermite Division, Whittaker Corporation

Well	Quarter	Number of Replicates	Mean	Standard Deviation	Variance	Coeff. of Variance
MW-5	5	4	1.5	0.000	0.000	0.000
	6	4	6.9	3.130	9.797	45.527
	7	4	2.0	0.000	0.000	0.000
	8	4	2.0	0.000	0.000	0.000
	9	4	0.5	0.000	0.000	0.000
	10	4	2.3	0.206	0.043	9.062
	11	4	1.6	0.283	0.080	17.678
	12	4	1.4	0.082	0.007	5.832
	13	4	0.25	0.000	0.000	0.000
	14	4	0.25	0.000	0.000	0.000
MW-6	5	4	1.5	0.000	0.000	0.000
	6	4	1.5	0.000	0.000	0.000
	7	4	2.0	0.000	0.000	0.000
	8	4	2.0	0.000	0.000	0.000
	9	4	0.5	0.000	0.000	0.000
	10	4	2.1	0.245	0.060	11.664
	11	4	1.5	0.236	0.056	16.020
	12	4	1.5	0.050	0.003	3.279
	13	4	0.25	0.000	0.000	0.000
	14	4	0.413	0.325	0.106	78.788
MW-10	14	4	0.25	0.000	0.000	0.000

TABLE H-2, PAGE 3

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
TOTAL ORGANIC CARBON (TOC)  
Bermite Division, Whittaker Corporation

-----  
Background Wells 1 and 3  
-----

Number of Background Samples (nb)	27
Background Mean	1.692
Background Variance (Sb2)	1.512

-----

MW-4, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	0.250
Sample Variance (Sm2)	0.000
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.000
Special Weighting (Wb)	0.056
T-Statistic (t*)	-6.093
Comparison T-Statistic (tc)	1.708

-----

MW-5, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	0.250
Sample Variance (Sm2)	0.000
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.000
Special Weighting (Wb)	0.056
T-Statistic (t*)	-6.093
Comparison T-Statistic (tc)	1.708

-----

TABLE H-2, PAGE 4

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
TOTAL ORGANIC CARBON (TOC)  
Bermite Division, Whittaker Corporation

-----  
MW-6, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	0.413
Sample Variance (Sm2)	0.106
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.027
Special Weighting (Wb)	0.056
T-Statistic (t*)	-4.452
Comparison T-Statistic (tc)	1.915

-----  
MW-10, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	0.250
Sample Variance (Sm2)	0.000
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.000
Special Weighting (Wb)	0.056
T-Statistic (t*)	-6.093
Comparison T-Statistic (tc)	1.708

## NOTES:

The statistics in this table are defined in 40 CFR Part 264, App. IV--Cochran's Approximation to the Behrens-Fisher Students' T-Test.

All values less than the detection limits have been given values equal to one-half the detection limits for purposes of calculation, as recommended on page 122 of the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986.

TABLE H-3

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
TOTAL ORGANIC HALOGENS (TOX)  
Bermite Division, Whittaker Corporation

Well	Quarter	Number of Replicates	Mean	Standard Deviation	Variance	Coeff. of Variance
MW-1	1	4	50.0	0.000	0.000	0.000
	2	4	50.0	0.000	0.000	0.000
	3	4	50.0	0.000	0.000	0.000
	4	4	50.0	0.000	0.000	0.000
	5	4	50.0	0.000	0.000	0.000
	6	4	50.0	0.000	0.000	0.000
	7	4	10.0	0.000	0.000	0.000
	8	4	10.0	0.000	0.000	0.000
	9	4	75.0	50.000	2500.000	66.667
	10	4	2.5	0.000	0.000	0.000
	11	4	2.5	0.000	0.000	0.000
	12	4	2.5	0.000	0.000	0.000
	13	0				
	14	4	2.5	0.000	0.000	0.000
MW-3	1	4	258.0	209.359	43831.250	81.305
	2	4	50.0	0.000	0.000	0.000
	3	4	50.0	0.000	0.000	0.000
	4	4	50.0	0.000	0.000	0.000
	5	4	50.0	0.000	0.000	0.000
	6	4	50.0	0.000	0.000	0.000
	7	4	10.0	0.000	0.000	0.000
	8	4	10.0	0.000	0.000	0.000
	9	4	50.0	0.000	0.000	0.000
	10	4	2.5	0.000	0.000	0.000
	11	4	2.5	0.000	0.000	0.000
	12	4	2.5	0.000	0.000	0.000
	13	4	2.5	0.000	0.000	0.000
	14	4	3.3	1.650	2.723	49.624
MW-4	1	4	85.0	36.856	1358.333	43.359
	2	4	50.0	0.000	0.000	0.000
	3	4	3630.0	565.420	319700.000	15.576
	4	4	858.0	99.844	9968.750	11.644
	5	4	128.0	20.463	418.750	16.050
	6	4	99.0	28.508	812.688	28.723
	7	4	10.0	0.000	0.000	0.000
	8	4	10.0	0.000	0.000	0.000
	9	4	50.0	0.000	0.000	0.000
	10	4	2.5	0.000	0.000	0.000
	11	4	2.5	0.000	0.000	0.000
	12	4	2.5	0.000	0.000	0.000
	13	4	2.5	0.000	0.000	0.000
	14	4	69.3	8.261	68.249	11.925

TABLE H-3, PAGE 2

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
TOTAL ORGANIC HALOGENS (TOX)  
Bermite Division, Whittaker Corporation

Well	Quarter	Number of Replicates	Mean	Standard Deviation	Variance	Coeff. of Variance
MW-5	5	4	50.0	0.000	0.000	0.000
	6	4	50.0	0.000	0.000	0.000
	7	4	10.0	0.000	0.000	0.000
	8	4	10.0	0.000	0.000	0.000
	9	4	50.0	0.000	0.000	0.000
	10	4	2.5	0.000	0.000	0.000
	11	4	2.5	0.000	0.000	0.000
	12	4	2.5	0.000	0.000	0.000
	13	4	2.5	0.000	0.000	0.000
	14	4	2.5	0.000	0.000	0.000
MW-6	5	4	50.0	0.000	0.000	0.000
	6	4	50.0	0.000	0.000	0.000
	7	4	10.0	0.000	0.000	0.000
	8	4	10.0	0.000	0.000	0.000
	9	4	50.0	0.000	0.000	0.000
	10	4	2.5	0.000	0.000	0.000
	11	4	2.5	0.000	0.000	0.000
	12	4	2.5	0.000	0.000	0.000
	13	4	2.5	0.000	0.000	0.000
	14	4	10.5	2.030	4.123	19.383
MW-10	14	4	2.5	0.000	0.000	0.000

TABLE H-3, PAGE 3

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
TOTAL ORGANIC HALOGENS (TOX)  
Bermite Division, Whittaker Corporation

-----  
Background Wells 1 and 3  
-----

Number of Background Samples (nb)	27
Background Mean	38.192
Background Variance (Sb2)	2588.562

-----

MW-4, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	69.275
Sample Variance (Sm2)	68.249
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	17.062
Special Weighting (Wb)	95.873
T-Statistic (t*)	2.925
Comparison T-Statistic (tc)	1.805

-----

MW-5, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	2.500
Sample Variance (Sm2)	0.000
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.000
Special Weighting (Wb)	95.873
T-Statistic (t*)	-3.645
Comparison T-Statistic (tc)	1.708

-----

TABLE H-3, PAGE 4

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
TOTAL ORGANIC HALOGENS (TOX)  
Bermite Division, Whittaker Corporation

-----  
MW-6, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	10.475
Sample Variance (Sm <sup>2</sup> )	2.030
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.508
Special Weighting (Wb)	95.873
T-Statistic (t*)	-2.823
Comparison T-Statistic (tc)	1.711

-----

-----  
MW-10, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	2.500
Sample Variance (Sm <sup>2</sup> )	0.000
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.000
Special Weighting (Wb)	95.873
T-Statistic (t*)	-3.645
Comparison T-Statistic (tc)	1.708

-----

NOTES:

The statistics in this table are defined in 40 CFR  
Part 264, App. IV--Cochran's Approximation to  
the Behrens-Fisher Students' T-Test.

All values less than the detection limits have been  
given values equal to one-half the detection  
limits for purposes of calculation, as  
recommended on page 122 of the RCRA Ground-Water  
Monitoring Technical Enforcement Guidance  
Document, September 1986.

TABLE H-4

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
SPECIFIC CONDUCTANCE  
Bermite Division, Whittaker Corporation

Well	Quarter	Number of Replicates	Mean	Standard Deviation	Variance	Coeff. of Variance
MW-1	1	4	598	13.519	182.750	2.263
	2	4	572	9.731	94.688	1.702
	3	4	554	6.292	39.583	1.136
	4	4	500	3.031	9.188	0.606
	5	4	524	10.986	120.688	2.096
	6	4	570	6.180	38.188	1.084
	7	4	504	2.500	6.250	0.497
	8	4	530	35.218	1240.333	6.651
	9	4	544	0.000	0.000	0.000
	10	4	573	11.121	123.667	1.942
	11	4	559	0.577	0.333	0.103
	12	4	575	0.957	0.917	0.167
	13	0				
	14	4	639	1.500	2.250	0.235
MW-3	1	4	699	19.447	378.188	2.783
	2	4	664	23.467	550.688	3.535
	3	4	622	12.121	146.917	1.948
	4	4	661	0.000	0.000	0.000
	5	4	617	1.785	3.188	0.289
	6	4	641	4.493	20.188	0.701
	7	4	590	3.742	14.000	0.634
	8	4	589	17.000	289.000	2.889
	9	4	642	0.000	0.000	0.000
	10	4	656	2.500	6.250	0.381
	11	4	629	0.957	0.917	0.152
	12	4	633	2.944	8.667	0.465
	13	4	642	1.258	1.583	0.196
	14	4	648	2.887	8.333	0.446
MW-4	1	4	606	19.397	376.250	3.203
	2	4	520	4.950	24.500	0.952
	3	4	636	35.679	1273.000	5.606
	4	4	596	1.732	3.000	0.291
	5	4	571	6.837	46.750	1.198
	6	4	577	5.629	31.688	0.975
	7	4	526	5.745	33.000	1.092
	8	4	515	0.000	0.000	0.000
	9	4	544	0.000	0.000	0.000
	10	4	571	8.386	70.333	1.470
	11	4	541	0.816	0.667	0.151
	12	4	542	1.633	2.667	0.301
	13	4	542	1.258	1.583	0.232
	14	4	548	1.708	2.917	0.312

TABLE H-4, PAGE 2

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
SPECIFIC CONDUCTANCE  
Bermite Division, Whittaker Corporation

Well	Quarter	Number of Replicates	Mean	Standard Deviation	Variance	Coeff. of Variance
MW-5	5	4	543	1.299	1.688	0.239
	6	4	578	5.890	34.688	1.019
	7	4	512	3.345	11.188	0.654
	8	4	560	12.961	168.000	2.315
	9	4	544	0.000	0.000	0.000
	10	4	552	4.787	22.917	0.868
	11	4	543	0.816	0.667	0.150
	12	4	544	3.304	10.917	0.607
	13	4	548	1.414	2.000	0.258
	14	4	539	0.500	0.250	0.093
	5	4	528	6.418	41.188	1.216
	6	4	578	4.330	18.750	0.750
	7	4	503	4.603	21.188	0.915
	8	4	536	1.500	2.250	0.280
MW-6	9	4	541	0.000	0.000	0.000
	10	4	528	10.720	114.917	2.029
	11	4	518	0.500	0.250	0.096
	12	4	519	2.500	6.250	0.481
	13	4	527	1.5	2.250	0.284
	14	4	535	1.414	2.000	0.264
	14	4	625	2.062	4.250	0.330
MW-10	14	4	625	2.062	4.250	0.330

TABLE H-4, PAGE 3

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
SPECIFIC CONDUCTANCE  
Bermite Division, Whittaker Corporation

-----  
Background Wells 1 and 3  
-----

Number of Background Samples (nb)	27
Background Mean	598.972
Background Variance (Sb2)	2796.218

-----

MW-4, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	547.750
Sample Variance (Sm2)	2.917
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.729
Special Weighting (Wb)	103.564
T-Statistic (t*)	-5.016
Comparison T-Statistic (tc)	1.713

-----

MW-5, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	538.750
Sample Variance (Sm2)	0.250
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.063
Special Weighting (Wb)	103.564
T-Statistic (t*)	-5.916
Comparison T-Statistic (tc)	1.708

-----

TABLE H-4, PAGE 4

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
SPECIFIC CONDUCTANCE  
Bermite Division, Whittaker Corporation

-----  
MW-6, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	535.000
Sample Variance (Sm2)	2.000
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	0.500
Special Weighting (Wb)	103.564
T-Statistic (t*)	-6.271
Comparison T-Statistic (tc)	1.711

-----

-----  
MW-10, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	625.250
Sample Variance (Sm2)	4.250
T-Statistic (tm) (Part 264, App. IV)	2.353
T-Statistic (tb) (Part 264, App. IV)	1.708
Special Weighting (Wm)	1.063
Special Weighting (Wb)	103.564
T-Statistic (t*)	2.569
Comparison T-Statistic (tc)	1.715

-----

NOTES:

The statistics in this table are defined in 40 CFR Part 264, App. IV--Cochran's Approximation to the Behrens-Fisher Students' T-Test.

All values less than the detection limits have been given values equal to one-half the detection limits for purposes of calculation, as recommended on page 122 of the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986.

TABLE H-5

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
HYDROGEN ION CONCENTRATION ((10)<sup>-pH</sup>)  
Bermite Division, Whittaker Corporation

Well	Quarter	Number of Replicates	Mean	Standard Deviation	Variance	Coeff. of Variance
MW-1	1	4	3.16E-08	0.00E+00	0.00E+00	0.0
	2	4	3.37E-08	3.55E-09	1.26E-17	10.5
	3	4	6.31E-08	0.00E+00	0.00E+00	0.0
	4	4	3.37E-08	3.55E-09	1.26E-17	10.5
	5	4	2.51E-08	0.00E+00	0.00E+00	0.0
	6	4	3.98E-08	0.00E+00	0.00E+00	0.0
	7	4	2.84E-08	3.25E-09	1.06E-17	11.5
	8	4	5.34E-09	6.50E-10	4.23E-19	12.2
	9	4	4.09E-08	1.07E-08	1.14E-16	26.1
	10	4	3.16E-08	0.00E+00	0.00E+00	0.0
	11	4	2.12E-08	2.58E-09	6.67E-18	12.2
	12	4	4.82E-08	1.11E-08	1.22E-16	22.9
	13	0				
	14	4	3.16E-08	0.00E+00	0.00E+00	0
MW-3	1	4	3.37E-08	3.55E-09	1.26E-16	10.5
	2	4	1.97E-08	5.57E-09	3.10E-17	28.3
	3	4	5.01E-08	0.00E+00	0.00E+00	0.0
	4	4	3.16E-08	0.00E+00	0.00E+00	0.0
	5	4	3.00E-08	2.82E-09	7.93E-18	9.4
	6	4	6.72E-08	7.07E-09	5.00E-17	10.5
	7	4	4.75E-08	4.46E-09	1.99E-17	9.4
	8	4	6.07E-09	1.39E-09	1.93E-18	22.9
	9	4	2.38E-08	2.58E-09	6.67E-18	10.8
	10	4	5.43E-08	6.49E-09	4.21E-17	12.2
	11	4	2.84E-08	3.76E-09	1.41E-17	13.2
	12	4	6.07E-08	1.39E-08	1.94E-16	22.9
	13	4	2.25E-08	2.98E-09	8.90E-18	13.2
	14	4	3.57E-08	4.73E-09	2.23E-17	13.2
MW-4	1	4	2.12E-08	2.24E-09	5.00E-18	10.5
	2	4	2.84E-08	3.25E-09	1.06E-17	11.5
	3	4	3.57E-08	4.09E-09	1.68E-17	11.5
	4	4	1.69E-08	1.78E-09	3.16E-18	10.5
	5	4	2.38E-08	2.24E-09	5.00E-18	9.4
	6	4	2.51E-08	0.00E+00	0.00E+00	0.0
	7	4	2.38E-08	2.24E-09	5.00E-18	9.4
	8	4	4.24E-09	5.15E-10	2.65E-19	12.2
	9	4	3.00E-08	3.25E-09	1.06E-17	10.8
	10	4	2.51E-08	0.00E+00	0.00E+00	0.0
	11	4	1.50E-08	1.63E-09	2.66E-18	10.8
	12	4	2.38E-08	2.58E-09	6.67E-18	10.8
	13	4	1.34E-08	1.63E-09	2.66E-18	12.2
	14	4	3.01E-08	1.36E-08	1.84E-16	45.2

TABLE H-5, PAGE 2

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
HYDROGEN ION CONCENTRATION ((10)^-pH)  
Bermite Division, Whittaker Corporation

Well	Quarter	Number of Replicates	Mean	Standard Deviation	Variance	Coeff. of Variance
MW-5	5	4	2.38E-08	2.24E-09	5.00E-18	9.4
	6	4	3.16E-08	0.00E+00	0.00E+00	0.0
	7	4	2.51E-08	0.00E+00	0.00E+00	0.0
	8	4	1.00E-08	2.83E-18	8.02E-36	0.0
	9	4	2.02E-08	3.80E-09	1.44E-17	18.8
	10	4	2.51E-08	0.00E+00	0.00E+00	0.0
	11	4	1.24E-08	4.06E-09	1.65E-17	32.7
	12	4	2.00E-08	0.00E+00	0.00E+00	0
	13	4	1.26E-08	0.00E+00	0.00E+00	0
	14	4	1.58E-08	0.00E+00	0.00E+00	0
MW-6	5	4	2.00E-08	0.00E+00	0.00E+00	0.0
	6	4	2.15E-08	3.89E-09	1.51E-17	18.1
	7	4	2.38E-08	2.24E-09	5.00E-18	9.4
	8	4	1.20E-08	1.30E-09	1.69E-18	0.0
	9	4	1.89E-08	2.05E-09	4.21E-18	10.8
	10	4	2.51E-08	0.00E+00	0.00E+00	0.0
	11	4	1.03E-08	2.68E-09	7.2E-18	26.1
	12	4	2.00E-08	0.00E+00	0.00E+00	0
	13	4	1.19E-08	1.29E-09	1.68E-18	10.8
	14	4	2.51E-08	0.00E+00	0.00E+00	0
MW-10	14	4	1.58E-08	0.00E+00	0.00E+00	0.0

TABLE H-5, PAGE 3

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
HYDROGEN ION CONCENTRATION  
Bermite Division, Whittaker Corporation

-----  
Background Wells 1 and 3  
-----

Number of Background Samples (nb)	27
Background Mean	3.50E-08
Background Variance (Sb2)	2.37E-16

-----

MW-4, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	3.01E-08
Sample Variance (Sm2)	1.84E-16
T-Statistic (tm) (Part 264, App. IV)	3.182
T-Statistic (tb) (Part 264, App. IV)	2.060
Special Weighting (Wm)	0.000
Special Weighting (Wb)	0.000
T-Statistic (t*)	-0.665
Comparison T-Statistic (tc)	3.002

-----

MW-5, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	1.58E-08
Sample Variance (Sm2)	0.00E+00
T-Statistic (tm) (Part 264, App. IV)	3.182
T-Statistic (tb) (Part 264, App. IV)	2.060
Special Weighting (Wm)	0.000
Special Weighting (Wb)	0.000
T-Statistic (t*)	-6.488
Comparison T-Statistic (tc)	2.060

-----

TABLE H-5, PAGE 4

SUMMARY OF QUARTERLY REPLICATE STATISTICS FOR  
HYDROGEN ION CONCENTRATION  
Bermite Division, Whittaker Corporation

-----  
MW-6, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	2.51E-08
Sample Variance (Sm2)	0.00E+00
T-Statistic (tm) (Part 264, App. IV)	3.182
T-Statistic (tb) (Part 264, App. IV)	2.060
Special Weighting (Wm)	0.000
Special Weighting (Wb)	0.000
T-Statistic (t*)	-3.348
Comparison T-Statistic (tc)	2.060

-----  
MW-10, Quarter 14  
-----

Number of Samples (nm)	4
Sample Mean (Xm)	2.05E-08
Sample Variance (Sm2)	4.21E-18
T-Statistic (tm) (Part 264, App. IV)	3.182
T-Statistic (tb) (Part 264, App. IV)	2.060
Special Weighting (Wm)	0.000
Special Weighting (Wb)	0.000
T-Statistic (t*)	-4.631
Comparison T-Statistic (tc)	2.180

## NOTES:

The statistics in this table are defined in 40 CFR Part 264, App. IV--Cochran's Approximation to the Behrens-Fisher Students' T-Test.

All values less than the detection limits have been given values equal to one-half the detection limits for purposes of calculation, as recommended on page 122 of the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, September 1986.

## **APPENDIX I**

### **ABANDONMENT OF MONITORING WELL MW-4**

**SERVICE APPLICATION AND FEE COLLECTION**  
**COUNTY OF LOS ANGELES - DEPARTMENT OF HEALTH SERVICES**  
**PUBLIC HEALTH PROGRAMS - ENVIRONMENTAL HEALTH**  
**SERVICE REQUEST APPLICATION**

**RECEIVED**  
**MAR 26 1992**

**INSTRUCTIONS**

1. Check the **TYPE OF SERVICE** requested and attach the required non-refundable fee to the application. Make money order or check payable to LOS ANGELES COUNTY TREASURER, **DO NOT SEND CASH**. This application is nontransferable.

**FEE REQUIRED\***

**TYPE OF SERVICE**

- |                                     |   |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <u>MONITORING WELL CONSTRUCTION/DESTRUCTION</u>   |
| <input type="checkbox"/>            | <u>WELL CONSTRUCTION, RENOVATION OR DESTRUCTION PERMIT</u><br>Complete and attach a Well Permit Application |
| <input type="checkbox"/>            | <u>PRIVATE SEWAGE DISPOSAL SYSTEM CONSTRUCTION PERMIT</u>   |
| <input type="checkbox"/>            | <u>PRIVATE SEWAGE DISPOSAL SYSTEM RENOVATION/EXPANSION</u>  |
| <input type="checkbox"/>            | <u>INSPECTION OF MOUNTAIN CABIN SITE</u> as required by the<br>United States Forest Service                 |
| <input type="checkbox"/>            | <u>INSPECTION OF EXISTING PRIVATE SEWAGE SYSTEM</u> as required<br>by FHAVA                                 |
| <input type="checkbox"/>            | <u>WATER SUPPLY TEST AND CERTIFICATION</u> as required by U.S.<br>Department of Agriculture                 |

2. Check with Contact Office stamped below for requirements or information.
3. Complete the required information or deliver the completed application, money order or check with the forms indicated.

to: County of Los Angeles  
Department of Health Services  
Public Health Programs  
Environmental Health  
2525 Corporate Place  
Monterey Park, Ca 91754  
(213) 881-4147

\* Refer to Schedule of Fees  
for current fiscal year.

**NOTE: FIELD PERSONNEL CANNOT ACCEPT FEES.**

4. Phone Contact Office noted below, after you have received your receipt, to request an inspection.

Bermite 22116 West Lohndal Canyon Rd Los Angeles 90047-2092  
Service/Job Location Address Date

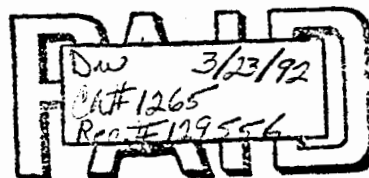
Whittaker Corp 10880 Wilshire Blvd Los Angeles 90024-1511  
Owner/Applicant's Name Address Phone No.

Aqua Drilling P.O. Box 414 Acton Ca 92610  
Contractor's Name Address Phone No.

Co. Engineer Plan Check No. \_\_\_\_\_ Tract No. \_\_\_\_\_ Lot No. \_\_\_\_\_ No. Bedrooms \_\_\_\_\_  
(Complete line above for Private Sewage Disposal System Construction or Renovation Application)

CONTACT OFFICE

DEPARTMENT STAMP



# APPLICATION FOR WELL PERMIT

ENVIRONMENTAL HEALTH 2525 Corporate Place Monterey Park, Ca 91754  
COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE 3-20-92 HTI

DESCRIPTION	TYPE OF PERMIT (CHECK) <input type="checkbox"/> NEW WELL CONSTRUCTION <input type="checkbox"/> RECONSTRUCTION OR RENOVATION <input checked="" type="checkbox"/> DESTRUCTION		TYPE OF WELL <input type="checkbox"/> PRIVATE DOMESTIC <input type="checkbox"/> PUBLIC DOMESTIC <input type="checkbox"/> IRRIGATION <input checked="" type="checkbox"/> OBSERVATION/MONITORING <input type="checkbox"/> CATHODIC <input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> GRAVEL PACK <input type="checkbox"/> TEST	
	TYPE OF CASING <u>stainless steel 4 inch 5 and 10</u>			
	METHOD OF SEALING OF CASING <u>benzene slurry</u>			
LOCATION	METHOD OF DESTRUCTION <u>perforate the bottom 100 feet the pressure grout</u>			
	ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION) <u>22116 West Soledad Canyon Rd. San Fernando Rd.</u>		CITY <u>Santa Clarita</u>	
	DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS) <u>see attached map</u>			
APPLICANT	NAME OF WELL DRILLER (PRINT) <u>Eddie Palmer</u>		NAME OF WELL OWNER (PRINT) <u>Whittaker Corp</u>	
	TRADE NAME <u>Acqua Drilling</u>		MAILING ADDRESS <u>10880 Wilshire Blvd.</u> <u>3939 Cambridge Road</u>	
	BUSINESS ADDRESS <u>PO Box 414 Acton Ca 93510</u>		CITY <u>Los Angeles Ca 90024</u>	
I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.			DISPOSITION OF APPLICATION: (For Sanitarians Use Only) <input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> DENIED <input type="checkbox"/> APPROVED WITH CONDITIONS If denied or approved with conditions, report reason or conditions here: <u>CD WRITES</u>	
<u>Hal Hansen</u> Applicant's Signature			DATE <u>4/16/92</u> SANITARIAN <u>[Signature]</u> SECTION CHIEF <u>[Signature]</u>	

When signed by Section Chief, this application is a permit.

APPLICANT

# RECEIPT/RECIBO

☐ UCLA MEDICAL CENTER

☐ RANCHO LOS AMIGOS MEDICAL CENTER

☐ DESERT HOSPITAL

☐ LAC-USC MEDICAL CENTER

☐ KING/DREW MEDICAL CENTER

☒ PUBLIC HEALTH

☐ OLIVE VIEW MEDICAL CENTER

SPECIFY:

*Water + Sewage Program*

ANY ALTERATION OR ERASURE RENDERS RECEIPT VOID

DATE

*3/23/92*

CUALQUIER ALTERACION O BORRÓN HACE ESTE RECIBO NULO

PAID FROM:

*Alton, Mickelson + Van Dam*

*\$101.00*

THE AMOUNT OF:

*One Hundred One Dollar*

and *00* / 100

☐ CASH

☐ MONEY ORDER #

☒ CHECK #

*1265*

☐ VISA

☐ MASTER CARD #

*BK# 11-24/477*

PATIENT NAME

PF #

ACCOUNT NO.

DATE(S) OF SERVICE

PAYMENT RECEIVED FOR

☒ MEDICAL SERVICES

☐ PHARMACY

MISCELLANEOUS

*ENR(1) Monitoring Well Permit @  
22116 West Salsded Canyon Rd.  
Santa Clarita, California*

RECEIVED BY

*H. Wilson*

No. 129556

## M A T E R I A L S A F E T Y D A T A S H E E T

Master Builders, Inc., 23700 Chagrin Blvd., Cleveland, Ohio 44122  
Emergency Phone: 216-331-5500 & 24-HOUR CHEMTREC: 800-424-9300  
CHEMTREC, D. C. Area: 483-7616

POZZOLITH 300-R

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Revision Date: 10-4-90

1. PRODUCT NAME: POZZOLITH 300-R  
Chemical Family: Cement Dispersing Agent
2. HAZARDOUS INGREDIENTS: LD50/LC50 TLV STEL PEL CONTE  
None by reference to OSHA Standard 29 CFR 1910.1200
3. PHYSICAL DATA:

Boiling Point:	100°C	Water/Oil Distribution	
Percent Volatile:	Not Applicable	Coefficient:	Not Applicable
Freezing Point:	-5°C	Solubility in Water:	Complete
Vapor Pressure:	Not Applicable	Specific Gravity:	1.20
Vapor Density:	Not Applicable	pH:	7.5
Odor Threshold:	Not Applicable	Evaporation Rate:	Not Applicable
Appearance and Odor:	Brown Liquid; Musty Odor		
4. FIRE AND EXPLOSION HAZARD DATA:

Flash Point:	Not Applicable	Method Used:	Not Applicable
Auto-Ignition Temperature:	Not Applicable		
LEL:	Not Applicable	UEL:	Not Applicable
Extinguishing Media:	Not Applicable		
Special Fire & Unusual Hazards:	Not Applicable		
5. REACTIVITY DATA:

<u>Stability:</u>	Stable
<u>Incompatibility:</u>	Strong mineral acids.
<u>Hazardous Decomposition Products:</u>	Oxides of Carbon
<u>Hazardous Polymerization:</u>	Will not occur.

## POZZOLITH 300-R

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## 6. ENVIRONMENTAL &amp; DISPOSAL INFORMATION

Action to Take for Spills/Leaks: Wear appropriate protective equipment. Take action to eliminate source of leak; contain spill by diking; vacuum up liquid or use absorbent media; remove to storage for disposal and rinse residual stain with water.

Waste Disposal Method: Dispose in accordance with local, provincial, state and federal regulations. This product is biodegradable and, with prior appropriate approval, can be disposed of in a sanitary treatment system or licensed land application facility.

## 7. HEALTH HAZARD DATA:

PRIMARY ROUTE(S) OF ENTRY: Dermal

Effects of Overexposure

Inhalation:	Not Applicable
Eyes:	Slight transient irritation.
Skin Contact:	No irritation expected.
Skin Absorption:	Not likely to be absorbed through the skin in toxic amounts.
Ingestion:	Single dose oral toxicity is low.
<u>Chronic:</u>	None known; not a carcinogen, mutagen or teratogen.

## 8. FIRST AID:

Inhalation:	Not Applicable
Eyes:	Flush with copious amounts of water for at least 15 minutes.
Skin:	Wash with soap and water.
Ingestion:	Drink two glasses of water and induce vomiting by Ipecac syrup, salt water, or placing finger at back of throat. Do not give anything by mouth to an unconscious person.

## 9. SPECIAL PROTECTION INFORMATION:

Ventilation:	Not Applicable
Personal Protective Equipment:	Chemical Goggles

## 10. ADDITIONAL INFORMATION:

Hazardous Materials Classification: Not Applicable

Storage Conditions: Not Applicable

Special Instructions: Not Applicable

The information herein is given in good faith. No warranty, expressed or implied, is given regarding the accuracy of these data or the results obtained from the use thereof. Consult Master Builders, Inc., Environmental Affairs for further information.